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Regulations and Courses of Study of the High Schools and Collegiate Institutes

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REGULATIONS

AND

COURSES OF STUDY

OF THE

High Schools and Collegiate Institutes

OF THE

Province of Ontario

AMENDED AND CONSOLIDATED

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DEPARTMENT OF EDUCATION

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HISTORICAL COLLECTION

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High School Regulations and Courses of Study.*

†Admission to the High Schools.

SUBJECTS FOR ADMISSION.

1.—(1) Candidates for admission to the High Schools shall be required to have completed the courses in the following subjects as prescribed for Form IV. of the Public Schools :

Group I.—Literature, History, Art, Physiology and Hygiene, Nature Study.

Group II.—Reading, Writing, Spelling, Geography, Grammar, Composition, Arithmetic.

(2) The Literature of Group I. shall embrace the careful reading during the previous year of at least four suitable works in English Literature (at least two of which shall have been read in class), selected by the Principal for each pupil from a list prepared by the Inspector and communicated by him to the schools before they reopen in August or September.

NOTE.—The works in English Literature shall be provided in the school library or bought by the pupils, as the Board of Trustees may direct.

(3) The examination in Reading shall be both written and oral. The examination paper shall be based on sight passages, and shall be designed as a test of the candidate's ability to understand what he reads. The candidate's knowledge of the selections for memorization shall also be tested on this paper.

GROUP I.

2.—(1) (*a*) Except as provided in 2 (2) and (4) and 6 below there shall be no examination in the subjects of Group I.

(*b*) Except as provided in (4) below, no candidate shall be admitted to the examination in the subjects of Group II., who does not present a certificate from the Principal of the Public, Separate, or Normal Model School in which he has been prepared and which has been approved by the Inspector, as provided in (3) (*b*) below, that he has completed satisfactorily the courses in the subjects of Group I. In the case of a candidate who writes at a centre outside of the inspectorate in which is situated the school at which he has been prepared, the certificate of the Principal shall not be accepted unless endorsed by the Inspector of said School.

---

* Except where otherwise evident, the term High School includes Collegiate Institute, and the term Board includes High School and Collegiate Institute Boards and Boards of Education.

†Under sections 44 to 47 of the High Schools Act of 1909, will be found the general provisions for the admission of candidates and the establishment, organization, and maintenance of Boards of High School Entrance Examiners.

(2) If, on the report of a High or a Continuation School Principal, a High School Entrance Board decides that the pupils of any Public, Separate, or Normal Model School are not adequately prepared in the subjects of Group I., the Board may itself subject the pupils coming from such school to an examination in the subjects of the Group, or in any subjects thereof it may deem necessary.

(3) (*a*) At his official visits to each school in his inspectorate, and thereafter as he may deem it expedient, the Public or the Separate School Inspector, as the case may be, shall make special enquiry as to whether the subjects of Group I. are being efficiently taken up.

(*b*) In the case of his non-approval of the course in Group I, the Inspector shall notify the Principal to this effect not later than June 15th; otherwise, the Principal may assume the Inspector's approval.

NOTE.—One of the matters upon which the Inspector should report officially to each School Board is the adequacy of the provision made at the date of his visit for teaching the subjects of Group I. As much of this report as he may deem necessary, he should submit to the Principal also, with any necessary suggestions and directions. It would also be well for the Inspector to require the Principal to forward the time-table in use since his last visit, with copies of at least the final school examination papers in the subjects of Group I., and any other records or particulars he may desire. The Inspector may exercise such discretion in regard to Art and Nature Study, as the conditions may seem to him to justify; but at least a reasonable course should be exacted in each of these subjects.

(4) When an applicant has not been prepared in a Public, Separate, or Normal Model School, the Public School Inspector shall report the circumstances to the High School Entrance Board, which shall deal with such case as it may deem expedient.

GROUP II.

(*a*) *Admission on Certificate.*

3. On its own motion or at the request of a Board of Education or a High School Board, a High School Entrance Board, after such enquiry as it may deem necessary, may grant admission to candidates on the certificates of the Principals of the Public, Separate, or Normal Model Schools, that such candidates have completed satisfactorily the course prescribed in the subjects of Group II.; but candidates not so admitted may take the uniform examination as herein prescribed.

(*b*) *Admission on Examination.*

4.—(1) A uniform examination in the subjects of Group II. shall be held annually, as prescribed herein, at the centres provided for in the High Schools Act.

(2) The examination papers shall be prepared by a Provincial Board of Examiners appointed by the Minister. The examiners shall be selected from the Inspectors of the Public and the Separate Schools and the Principals of the High Schools.

(3) A report from the Principal as to the standing of his candidates in the subjects of Group II., may be submitted to the Public

School Inspector for the consideration of the High School Entrance Board in connection with the examination results.

(4) The answer papers shall be valued and the results settled by the Board of Examiners constituted under the High Schools Act; but no examiner shall value the answer papers of his own pupils.

5.—(1) The marks for the High School Entrance Examination shall be apportioned as follows:

Reading (oral), Writing, Spelling, each 50;
Reading (examination paper), Grammar, Composition, Geography, Arithmetic, each 100.

Two marks shall be deducted for each misspelled word in the Spelling paper, and reasonable deductions may be made for misspelling in the other papers. Deductions shall also be made for want of neatness.

(2) A candidate who obtains 40 per cent. of the marks in each subject and 60 per cent. of the aggregate marks, shall be entitled to pass standing. The examiners may also award pass standing to a candidate who has not made a bad failure in any subject and who has made a high aggregate above the total required.

(3) The decision of a High School Entrance Board shall be final with regard to the admission or rejection of any candidate; but the Chairman may submit a case to the Board for reconsideration on the complaint of any candidate or any other person with regard to the examination.

SPECIAL CASES.

6. In Groups I. and II. a High School Entrance Board may grant admission, on or without examination, to candidates whose cases deserve special consideration, and who, in its judgment, are able to take up the work of the High School; but this provision shall not apply to a candidate at a centre outside of the inspectorate in one of the Public or the Separate Schools of which he has been prepared, who does not present the certificate of competency in Group I. prescribed in 2 (1) (*b*) above.

PROVISIONAL ADMISSION.

7.—(1) In the interval between examinations, a pupil who has been prepared on a different course in another Province or Country, or a pupil who was unavoidably prevented from attending the High School Entrance examination, may be admitted provisionally to a High School by the Principal, with the concurrence of the Public School Inspector, if in their judgment he is able to take up the work of the High School.

(2) A report showing the age and attainments of such pupil, with the reasons for his admission, and signed by the High School Principal and Public School Inspector, shall be submitted to the High School Entrance Board at its next meeting. The Board shall then dispose of the case, and include the name of the pupil, if finally admitted, in its report at the next annual examination.

CERTIFICATES.

8. Each candidate admitted to a High School shall be entitled to a certificate signed by the Chairman and the Secretary.

PRESIDING OFFICERS.

9.—(1) At each centre there shall be a chief presiding officer and such assistant presiding officers as may be required by the Regulations. The chief presiding officer shall have the general oversight of the examination and the custody of the question papers and the answers, and both he and the assistant presiding officers shall be responsible to the Minister for the proper performance of their duties.

(2) The number of candidates under each presiding officer shall not exceed forty.

(3) The Principal of the High School shall be the chief presiding officer at his own school, and the Inspector may be the chief presiding officer at any other centre he may select.

(4) The other chief presiding officers shall be appointed by the senior Public School Inspector, and the assistant presiding officers by the High School Entrance Board.

(5) No presiding officer shall preside over his own pupils.

ORGANIZATION OF THE BOARD.

10.—(1) (*a*) The High School Principal or the Senior High School Principal, as the case may be, shall be Chairman of a High School Entrance Board on which there are one or more High School Principals.

(*b*) The Inspector or the Senior Inspector, as the case may be, shall be Chairman of a High School Entrance Board on which there is no High School Principal.

(2) (*a*) The High School Entrance Board shall appoint annually one of its members as Secretary. The Secretary shall keep the minutes of the Board, and shall record the results, issue the certificates, and report the names of the successful candidates to the Minister and their marks to the unsuccessful candidates.

(*b*) In an inspectorate in a territory without county organization where there is no High School, the Inspector shall perform the duties of Secretary.

PAYMENT FOR INCIDENTALS.

11. The School Board at each centre, whether in a County or a territory without county organization, shall pay the cost of the stationery and any other necessary supplies and all other incidental expenses.

CANDIDATES' FEES.

12. Where candidates are charged fees, as provided in section 46, subsection (5) of the High Schools Act, such fees shall, before the close of the first day of the examination, be collected by the chief presiding officer.

REMUNERATION OF BOARDS AND PRESIDING OFFICERS.

13.—(1) Each chief presiding officer shall be paid at the rate of $4.00 per diem, and each assistant presiding officer at the rate of $3.00 per diem, for presiding at and conducting the examination in accordance with the instructions of the Department.

(2) A presiding officer, appointed to a centre other than one at his place of residence, shall be allowed the usual cost of conveyance for one return trip between his place of residence and the centre at which he presides.

(3) An examiner whose place of residence is not at the centre where the meetings of the High School Entrance Board are held, shall be allowed for each meeting of the Board the usual cost of conveyance for one return trip between the centre and his place of residence.

(4) Except with the consent of the High School Board or the County Council or the Minister, as the case may be, the allowance for conveyance, provided in (2) and (3) immediately preceding, shall not exceed $3.00.

(5) The examiners shall be paid at the rate of 70c. a candidate for reading the answer papers; and the Secretary shall be paid at the rate of 5c. a candidate.

(6) All payments under this regulation shall be made, on the requisition of the Chairman, as provided in section 46, subsection (4), and section 47, subsection (3) of the High Schools Act.

NOTIFICATION BY CANDIDATES.

14. Every candidate shall notify the Public School Inspector concerned, before May 1st, of the examination centre at which he purposes writing.

REPORTS TO MINISTER.

15.—(1) The Inspector shall report to the Minister not later than the 4th day of May in each year the number of candidates for examination at each centre within his inspectorate.

(2) *Within twenty-one days after the last day of the examination, the High School Entrance Board shall issue certificates to successful candidates and statements of marks to unsuccessful candidates, and report to the Minister, on a form to be supplied by him, the names of the successful candidates at each centre.*

NOTE.—If the members of a High School Entrance Board are themselves unable to overtake the work of examining the papers within the time specified, they shall appoint examiners [see High Schools Act, section 46 (3)] to assist them, so that the returns may not be delayed.

PRINCIPAL'S CERTIFICATE.

16.—(1) In the case of a candidate admitted without examination under Reg. 4, the certificate for Part I. shall be subject to the order of the High School Entrance Board after June 15th.

(2) A certificate of the following form shall be handed by the candidate to the Chief Presiding officer before the first examination paper of Group II. is handed out (see Regulations 1 and 2):

HIGH SCHOOL ENTRANCE EXAMINATION.

PART I.

Principal's Certificate.

To the Chief Presiding Officer at the High School Entrance centre at

....

Name of Candidate ....

Age ....

Address ....

Last Form at School ....

I. I hereby certify that the above named candidate—

(1) has been a pupil in this school for the last ....;
(Months or Years.)

(2) has read the following four works in English Literature during the past year ....

....

....;

(3) and has completed satisfactorily the subjects of Group I. prescribed for Entrance into the High Schools, viz. :—Literature, History, Art, Physiology and Hygiene, Nature Study.

II. I hereby further certify that the course in the subjects of Group I. in my School has been approved by the Inspector, as provided in High School Reg. 2 (3) (*b*).

....
Principal.

School ....

Principal's Address ....

Dated ....

Establishment of High Schools.

17.—(1) (*a*) Subject to the provisions of Appendix D, a High School with three teachers may, on the report of the High School Inspector, occupy the same building as a Public School; but a High School with four or more teachers shall occupy a separate building and separate grounds.

(2) The plans and site of every High School hereafter erected or remodelled shall be subject to the approval of the Minister of Education. (For details see Appendix D.)

(3) In all High Schools established since July, 1891, or to be hereafter established, there shall be a Principal and at least two assistants. High Schools established before that date with a Principal and one assistant shall remain legally constituted.

(4) No new High School shall receive any grant that does not comply with the instructions of the Minister of Education with regard to accommodations as set forth in Appendix D., and that does not provide equipment of at least the following value:

Library, $300; Scientific Apparatus, $300; Maps, Charts, and Globes, etc., $50, and Art Models, $50.

Establishment of Collegiate Institutes.

18. Under the provisions of section 9 (2) of the High Schools Act of 1909, a High School may be raised to the status of a Collegiate Institute by the Minister of Education when it is shown to his satisfaction that the Trustees have provided:

(1) Adequate and suitable school accommodations;

(2) Equipment of the value and character recognized as the maximum in Reg. 22 (2);

(3) The staff prescribed in Reg. 25 (2).

Establishment of Approved Schools.

19. A High School or Collegiate Institute which fulfils the following requirements shall be entitled on the report of the High School Inspector to the status of an Approved School:

ACCOMMODATIONS AND EQUIPMENT.

(1) The Accommodations, including the provisions for the teaching of Science, shall be both adequate and suitable for the courses taken up.

(2) (*a*) The equipment shall be both adequate and suitable for the courses taken up, and shall be of at least the following value; Library $300; Scientific Apparatus, $300; Maps, Charts, Globes, etc., $50; and Art Models, $50.

(*b*) Equipment for practical work by the pupils in Physics and Chemistry is indispensable.

STAFF.

(3) The members of the staff shall be legally qualified and competent to teach all the subjects under their charge.

ORGANIZATION AND MANAGEMENT.

General.

(4) (*a*) The organization of the whole school shall meet the demands of the Regulations and the necessities of the situation.

(*b*) In particular, the minimum time apportioned to Elementary Science, Reading, Writing, and Physical Culture shall be that prescribed under Regulations 29 and 30.

(*c*) Schools in which any of the forms or classes are so large as to interfere with the efficiency of the teaching shall not be approved.

NOTE 1.—In schools with five or more teachers, the total number on the roll at any one time should not exceed an average of 30 to each teacher; in schools with fewer than five teachers, a smaller number may be necessary in order to secure efficient grading. When in doubt, School Boards and Principals should consult the Inspector.

NOTE 2.—In order to secure progressive development and economy of effort, division of a subject among two or more teachers should be avoided. In the larger schools this may not be practicable in all subjects, but the principle should be observed in the Lower School.

Science Teaching.

(5) The courses in Biology, Physics, and Chemistry shall be taken up practically throughout by the pupils.

Promotion Examinations.

(6) The adequacy of the pupil's knowledge in the following Lower School subjects should be decided, not only by the character of the exhibits prescribed in Regulation (8) below, but, as is usual in other subjects, by a promotion examination extending over each of the courses; and the Principal should preserve for the Inspector a copy of each of the final examination papers in these subjects with a statement of the total marks obtained in each subject by each pupil:

Reading, Writing, Spelling, Book-keeping and Business Papers, Art, Biology, Geography, English Grammar, and Arithmetic and Mensuration.

Status of Certain Pupils.

(7) (*a*) When the Principal admits into the Middle School pupils of his own School, who have not completed satisfactorily to him the Lower School courses in the subjects enumerated in Reg. (6) above, he should in September provide classes in the course or courses which they have not completed.

(*b*) When pupils enter from other schools the Principal should require them to pursue under his supervision the full Lower School course in the subjects enumerated in Regulation (6) above, unless, after due investigation and examination, he finds, in individual cases, that credit may be given for work done in the other school.

NOTE 1.—The cases of pupils who enter a Non-approved School from an Approved School in which they have completed satisfactorily to the Principal thereof the courses in the subjects enumerated in Regulation (6) above, should be referred to the Inspector.

NOTE 2.—The School Records should show each pupil's Lower School status under the Approved School Scheme, in such a way that, on the retirement of a member of the staff, there may be no doubt as to the situation.

EXHIBITS.

(8) (*a*) The pupils' work in Art, their note-books in Science, and their exhibits in Book-keeping and Business Papers as prescribed in the Course of Study under the head of Book-keeping and Business Papers, p. 24, shall be satisfactory.

(*b*) The complete exhibits of each pupil for each year in the Art, Science, and Book-keeping and Business Papers of the Lower School should be collected by the Principal at the end of June, and held for the Inspector's examination and rating.

(*c*) All exhibits of the Art and Science of the Lower School should indicate, by an intelligible system of dating, when the work was done; and the work submitted for examination should, as far as practicable, be arranged in the order in which it was accomplished.

(*d*) Care should be taken to keep separate the first year work and the second year work of each pupil.

INSPECTOR'S EXAMINATIONS.

(9) The Inspector's examinations, both oral and written, shall test whether the work of the different classes, especially those of the Lower School, has been properly done.

FORFEITURE OF STATUS.

(10) Subject to the approval of the Minister of Education, a school shall lose the status of an Approved School, if the Dean of a Faculty of Education or the Principal of a Normal School reports that the preparation of the pupils from such school in the subjects enumerated in (6) above has not been satisfactory.

General Legislative Grants.

HIGH SCHOOLS.

20. Every High School that complies with the Regulations of the Department of Education shall be entitled to the following grants:

(1) A fixed grant of $375;

(2) In respect of equipment, ten per cent. of the total approved expenditure, but so as not to exceed $165 in the case of High Schools with two masters, or $325 in the case of High Schools with three or more masters;

(3) In respect of school accommodation, a maximum of $100 in the case of High Schools with two masters and of $150 in the case of High Schools with three or more teachers; and

(4) In respect of salaries, ten per cent. of the approved expenditure over $1,500, but so as not to exceed $600.

COLLEGIATE INSTITUTES.

21. Every Collegiate Institute that complies with the Regulations of the Department of Education shall be entitled to the following grants:

(1) A fixed grant of $375;

(2) A grant in respect of approved equipment of $325;

(3) A grant in respect of approved school accommodation of $200; and

(4) Ten per cent. of the approved expenditure on salaries over $1,500, but so as not to exceed $600.

NOTE 1.—The grants under (2) and (3) are subject to reduction according to the character of the equipment and accommodations.

NOTE 2.—Under section 9 (2) and (3) of the High Schools Act of 1909 will be found the general provisions for the establishment and disestablishment of Collegiate Institutes.

APPORTIONMENT OF THE LEGISLATIVE GRANTS.

22. In apportioning the Legislative grant on equipment, the maximum value recognized shall be as follows:

(1) In the case of High Schools with two masters: Library, $300; Scientific Apparatus, $300; Biological Specimens, $50; Maps, Charts, Globes, etc., $50; Art Models, $50; Typewriters, $100; Gymnasium, not including equipment, $800.

(2) In the case of Collegiate Institutes and of High Schools with three or more masters: Library, $600; Scientific Apparatus, $600; Biological Specimens, $100; Maps, Charts, Globes, etc., $50; Art Models, $100; Typewriters, $200; Gymnasium, not including equipment, $1,600.

NOTE 1.—The supply of Biological specimens is not at present obligatory for either High Schools or Collegiate Institutes. The Minister, however, expects it to be provided as soon as practicable.

NOTE 2.—Typewriters and a Gymnasium are optional for High Schools.

NOTE 3.—The catalogue of the equipment shall be kept in the School by the Principal and shall be accessible to any officer of the Department of Education.

23.—(1) The instructions of the Minister of Education in the matter of grading shall be followed in apportioning the grant for school accommodations. (See Appendix D.)

(2) No High School or Collegiate Institute shall be entitled to any Legislative grant on its gymnasium for any year in which the time prescribed in Reg. 30 (1), for Physical Culture has not been provided.

(3) On the report of a High School Inspector that the equipment or the accommodations are inadequate or unsuitable, or that one or more members of the staff are inefficient or not legally qualified, such reductions may be made in the grants payable upon the equipment, the accommodations, and the salaries of the staff, as the Minister of Education may deem expedient.

Organization and Management.

STAFFS.

24.—(1) In every High School or Collegiate Institute the head teacher shall be called the Principal, and the other teachers Assistants.

(2) The authority of the Principal of the High School shall be supreme in all matters of discipline in his own School.

(3) The authority of the Principal of the High School shall be supreme in all matters of discipline in those parts of the school accommodations which the Public School and the High School occupy in common.

(4) The Principal shall determine the number of Forms, the number of pupils to be assigned to each Form, and the order in which the subjects in each Form shall be taken up by the pupils.

(5) The Principal shall make such promotions from one Form to another as he may deem expedient; he shall also assign the subjects of the courses of study among the Assistants.

(6) Where, under section 26 of *The High Schools Act*, a Board appoints a Supervising Principal, the provisions of Reg. 24 (2), (3), and (4), shall be subject to such modifications as may be hereafter prescribed by Regulations of the Department of Education.

(7) *Mutatis mutandis* the duties of High School teachers are the same as those prescribed for Public School teachers under section 82 of *The Public Schools Act*.

25.—(1) The Principal of a High School shall hold a Principal's certificate and the Assistants shall hold High School Assistants' certificates.

(2) The Principal of a Collegiate Institute shall hold a Principal's certificate, and there shall be at least five teachers on the staff, as follows: One specialist in Classics, one in Mathematics, one in Moderns and History, and one in Science, one of the staff of the School holding a specialist's certificate in Art, and one, a specialist's certificate in the Commercial subjects; with such other assistants as will secure thorough instruction in all the subjects of the High School course as far as Entrance into the Faculties of Education and pass Senior and pass and honour Junior Matriculation into the University of Toronto.

NOTE.—Subject to such necessary modifications as may be approved by the High School Inspector, each specialist shall be at the head of his department and shall take at least the senior classes therein. In the larger schools where there are more than one specialist in a department, the Principal shall determine the division of the subjects. Specialists in English and History and in French and German have been provided for the larger schools, thus permitting of a sub-division of the subjects taken by a specialist in Moderns and History.

(3) Special teachers of Music, Physical Culture, Manual Training, Household Science, and Agriculture and Horticulture, shall possess the qualifications prescribed by the Minister of Education.

NOTE.—At present the supply of Art Specialists is not adequate. Until it is, the Minister will accept, on the report of the High School Inspector, such qualifications as are found to be the highest available. But it is the duty of each Collegiate Institute Board to provide a specialist as soon as practicable.

26.—(1) If, after due advertisement, a Board is unable to obtain a legally qualified teacher, a temporary certificate may be granted by the Minister of Education for the current half year to a suitable person on the application of the Board.

(2) In the case of substitute teachers without legal qualifications, appointed in an emergency, no engagement for longer than two weeks shall be made without the formal consent of the Minister.

PUPILS.

27.—(1) Unless otherwise directed by the Board, the pupils attending a High School shall assemble for study at nine o'clock in the forenoon, and shall be dismissed not later than four o'clock in the afternoon. Such recesses at noon and during the forenoon and afternoon shall be allowed as the Board may approve; but in no case shall the school hours be less than five hours a day including the recesses in the forenoon and afternoon.

(2) Every pupil registered in a High School shall attend punctually and regularly every day of the school year in which his name is so registered. He shall be neat and cleanly in his person and habits, diligent in his studies, kind and courteous to his fellow pupils, obedient and respectful to his teacher, and shall submit to such discipline as would be exercised by a kind, firm, and judicious parent.

(3) (*a*) Every pupil on returning to school after absence from any cause shall give orally or in writing to the Principal, as may be required by him, a proper reason for his absence.

(*b*) A pupil may retire from school at any hour during the day at the request, either oral or written, of his parent or guardian, or with the consent of the Principal.

(*c*) On the report of the Principal, a Board may suspend a pupil whose parent or guardian fails to provide him with the text books or other supplies required in his course of study, or to pay the fees imposed for such purpose by the Board.

(*d*) Subject to the action of the Board, a pupil who injures or destroys school property may be suspended until the property destroyed or injured is made good by the parent or guardian of such pupil.

(4) Every pupil shall be responsible to the Principal for his conduct on the school premises or on the way to or from school, except when accompanied by his parent or guardian or by some person duly appointed on their behalf.

NOTE.—Section 82 (*i*) of *The Public Schools Act* specifies the other offences for which a pupil may be suspended, and the mode of suspension (see also Reg. 24 (7) above).

(5) No pupil once enrolled in a High School shall be admitted to another High School or to a Continuation School, unless he presents a letter of honourable dismission from the Principal of the School he last attended. In the event of a dispute, the parties thereto shall submit full particulars of the question, for final settlement to the Inspector of the School into which the pupil seeks admission.

Organization of the Courses of Study.

28.—(1) The High School courses of study shall be taken up in three main divisions: The Lower School, the Middle School, and the Upper School; each being regularly a two years' course.

(2) The High School courses of study shall consist of the General Course, and the following Special Courses: (*a*) the Courses for pass Senior and pass and honour Junior University Matriculation and the Preliminary Examinations of the Learned Professions; (*b*) the Commercial Course; (*c*) the Middle School Art Course; (*d*) the Courses for admission to the Model and Normal Schools and the Faculties of Education; (*e*) the Manual Training Course; (*f*) the Household Science Course; and (*g*) the Agricultural Course.

NOTE 1.—The provision for, and the details of the General Course are given in Appendix A.; of the Special Courses (*a*), in the calendars of the different Universities and Learned Societies; and of the Special Courses (*b*), (*c*) and (*d*) in Appendix C. The regulations and details of the Special Courses (*e*), (*f*) and (*g*) may be obtained on application to the Deputy Minister of Education.

NOTE 2.—The University Matriculation Examinations will be conducted by the Department of Education; but the examiners and associate examiners therefor will be appointed and the examination results settled by the University Matriculation Board.

NOTE 3.—The Learned Societies will have, as heretofore the privilege of selecting the papers—University or Departmental—that will meet the requirements of their preliminary examinations.

NOTE 4.—The results of their examinations will be communicated to the Universities and the Learned Societies by the Department of Education.

(3) The Board shall select on the report of the Principal the courses to be taken up in the School; but a course shall not be taken up if, on the report of the High School Inspector, the Minister of Education decides that the staff, the equipment, or the accommodations are inadequate or unsuitable therefor.

(4) The following subjects shall be obligatory on all pupils:

(*a*) The Lower School courses in Geography, Arithmetic and Mensuration, English Grammar, Writing (apart from Book-keeping), Reading, and Physical Culture; and

(*b*) The English Composition, English Literature, and History of the Lower and Middle Schools.

(5) Pupils in the General Course shall take in addition:

(*a*) The Art and the Elementary Science of the Lower School; and

(*b*) Such other subjects of the High School programme as may be agreed upon between the pupil's parent or guardian and the Principal of the school.

(6) Pupils in the special Commercial, Manual Training, Household Science, Art, and Agricultural Courses shall take at least the subjects that are obligatory on all pupils [see 28 (4)], with such suitable modifications as may be prescribed by the Minister of Education or may be deemed expedient by the Principal and approved by the Minister.

(7) One of the courses prescribed in Reg. 28 (2) above, and not more without the consent of the Principal, shall be taken by each pupil; but the Principal may omit or curtail the course in any of the obligatory subjects in the case of individual pupils whose circumstances, in his judgment, deserve special consideration.

29. The following shall be the average minimum amount of time to be devoted to each of the following subjects, separately from the other subjects, in the courses where such subjects are obligatory:

(1) *Reading.*—Two lessons of thirty minutes each every week for two years in the Lower School, the average number of pupils in each class being not more than twenty-five and the time being increased or diminished proportionately when the average in the class is greater or less than twenty-five. In all the school subdivisions, Reading shall also be taken up systematically in connection with English Literature.

(2) *Writing,* apart from Book-keeping.—Two lessons of thirty minutes each every week throughout the first year or until the pupils have acquired a graceful, legible business hand.

(3) *Elementary Science*:—

(*a*) For Biology, a lesson for two years in the Lower School, of thirty minutes every day, or the equivalent thereof, during the months of September and October, and from the beginning of April to the end of June, the time for Biology being divided about equally between Zoology and Botany.

(*b*) In Physics and Chemistry a lesson for two years in the Lower School, of thirty minutes three times every week, or the equivalent thereof, during the rest of the school year.

30.—(1) (*a*) The course in Physical Culture (Drill, Calisthenics, and Gymnastics) is obligatory in Collegiate Institutes and in High Schools which have a gymnasium, and shall be taken up in lessons of thirty minutes each, three times every week, in each Form of the Lower School.

(*b*) Provision for Physical Culture of at least two half hours every week shall also be made in the Middle and Upper Schools of said Schools.

(2) In High Schools having no gymnasium, Drill and Calisthenics shall be taken up at the discretion of the Principal as often as the weather, the accommodations, and the adequacy of the staff will permit; and gymnastics may be omitted.

NOTE.—After August, 1911, a Collegiate Institute which has not provided a gymnasium satisfactory to the Minister of Education, shall forfeit its status.

(3) No pupil shall be exempted from the course in Physical Culture except upon a medical certificate, or on account of evident physical disability, or for other reason satisfactory to the Principal. In all the forms the sexes shall be separately trained.

(4) The Principal may substitute for part of the course in Physical Culture, suitable sports and games in which all the members of a class shall take part and which shall be under the supervision of the members of the staff.

Religious Instruction.

31.—(1) (*a*) Every High School shall be opened with the Lord's Prayer and closed with the reading of the Scriptures and the Lord's Prayer, or the prayer authorized by the Department of Education.

(*b*) When a teacher claims to have conscientious scruples in regard to opening or closing the school as herein prescribed, he shall notify the Board to that effect in writing; and it shall be the duty of the Board to make such provision in the premises as it may deem expedient.

(2) (*a*) The Scriptures shall be read daily and systematically; the portions used may be taken from the book of selections adopted by the Department for that purpose, or from the Bible, or from the list of the Selected Scripture Readings of the International Bible Reading Associations, as the Trustees by resolution may direct.

(*b*) A Board may also order the reading of such portions by both pupils and teachers at the opening and the closing of the school, the repeating of the Ten Commandments at least once a week, and the memorization of passages selected from the Bible.

(3) (*a*) No pupil shall be required to take part in any religious exercises objected to by his parents or guardians, and, to secure the observance of this regulation, the teacher, before commencing a religious exercise, shall allow the necessary interval to elapse, during which the children of Roman Catholics, and of others who have signified their objection, may retire.

(*b*) If, in virtue of the right to be absent from the religious exercises, any pupil does not enter the school room till the close of the time allowed for religious exercises, such absence shall not be treated as an offence against the rules of the school.

(4) (*a*) The clergy of any denomination, or their authorized representatives, shall have the right and it shall be lawful for the Board to allow them, to give religious instruction to the pupils of their own church, in each school house, at least once a week, after the hour of closing the school in the afternoon.

(*b*) If the clergy of more than one denomination apply to give religious instruction in the same school house, the Board shall decide on what day of the week the school house shall be at the disposal of the clergymen of each denomination, at the time above stated.

(*c*) Emblems of a denominational character shall not be exhibited in a High School during regular school hours.

Graduation Diplomas.

32. Graduation diplomas, signed by the Chairman of the Board and the Principal of the High School or Collegiate Institute, may be awarded to pupils whose conduct has been satisfactory and who have completed, to the satisfaction of the Principal, one of the courses prescribed for the Middle or the Upper School.

Inspection.

33.—(1) Every High School Inspector, while officially visiting a school, shall have supreme authority in the school, and may direct teachers and pupils in regard to any or all of the exercises of the schoolroom. He shall make enquiry and examination, in such manner as he may think proper, into the qualifications and the efficiency of the staff, the adequacy and the suitability of accommodations and equipment of the school, and all matters affecting the progress and the health and comfort of the pupils. He shall report to the Minister of Education, with his recommendations, the result of his enquiry and examination, within ten days after the close thereof, and shall also from time to time report any violation of the Schools Act, or the Regulations of the Department of Education in the case of the schools for which he is inspector.

(2) The following schedule prescribes the number of days to be devoted, as far as practicable, by the High School Inspector to each class of School:

No. of Masters.	No. of Days.	No. of Masters.	No. of Days.
2	1	7–8	3½
3	1½	9–12	4
4	2	12–15	5
5–6	3		

For a staff of over 15 teachers the number of days shall be at least five and so much more time as shall enable him to report fully upon the condition of the School.

Appendix A.

Programme of Studies.

MANNERS AND MORALS.

Throughout the High School courses the teacher should incidentally, from current incidents, from lessons in literature, history, etc., and by his own example as well as by precept, seek to give instruction in moral principles and practices and in good behaviour.

The following outline is suggested :—

Duties to oneself : Purity, health, nobility, self-control, self-reliance, generosity, truthfulness, good taste in dress, cultivation of will power, economy, moral value of work, etc.

Duties in school to teachers and to fellow pupils : Obedience, punctuality, neatness, order, etc.

Duties in the home : Respect for parents, consideration for brothers and sisters, the weak, the aged, etc.

Duties to the lower animals : Kindness, etc.

Duties to the people generally : Honesty, courtesy, charity, toleration, justice, etc.

Duties to our country : Patriotism, courage, honour, obedience to law, etc.

Manners : Proper conduct at home, at school, on the street, and in public places, at social gatherings, etc.

PHYSICAL CULTURE.

Throughout the High School course, a systematic and well-developed course of exercises in Drill and Calisthenics, both free and with apparatus, and in Gymnastics, when practicable, should be taken up in each of the sub-divisions (See Reg. 30). While dependent to some extent upon the accommodations and equipment, the exercises should always be suitable in character and frequency to the age and physical condition of individual pupils. The main object of the course is the symmetrical development of the body, securing at the same time strength and grace with correct and prompt obedience to the will. School games and sports should be systematically encouraged.

SCIENCE.

The courses in Biology, Physics, and Chemistry, shall be taken up practically throughout by the pupils. Without adequate provision for this purpose, the Principal cannot give the certificate required in Appendix C., III., 1, (2), (*b*).

Notes shall not be dictated by the teacher in any of the Science classes.

THE GENERAL COURSE.

The following programme of studies has been prepared primarily for the general student; but it includes the courses prescribed for University pass and honour Junior Matriculation, for the Preliminary Examinations of the Learned Professions, and for admission to the Model and Normal Schools and the Faculties of Education.

I. Lower School.

READING.—Intelligent and intelligible natural reading. The principles learned incidentally. Exercises in breathing, articulation, and vocalization.

ENGLISH GRAMMAR.—The principles of etymology and syntax, including the logical structure of the sentence and the inflection and classification of words. The elementary analysis of words, with the most important prefixes and suffixes and Latin and Greek root-words. An elementary knowledge of the formation of the sounds of the language, with their representation by means of the alphabet. An outline of the history of the development of the language.

NOTE.—The use of English grammar in teaching correct oral and written composition, though important, especially when the principles of good English can be intelligently applied, is secondary to the insight it gives into the structure of our thinking and expression. For the first year the work should be confined to a thorough review and slight extension of the course prescribed for the Fourth Form of the Public Schools, and the practical value of the subject in connection with English composition should be emphasized. The intensive and more reflective study should be reserved for the second year of the course.

ENGLISH COMPOSITION.—Oral and written composition: Elements of Narration, Description, Exposition, and Argumentation. Special attention to letter writing. Oral and written reproductions or abstracts. Class debates. The systematic and careful application of the principles of good English to the correction of mistakes made by the pupils in speaking and writing. The main principles of composition (rhetoric) learned incidentally from the criticism of the compositions, and systematized as the work proceeds.

NOTE.—*Special attention shall be paid to English Composition.*

ENGLISH LITERATURE.—Intelligent comprehension of suitable authors, both prose and poetry. Systematic oral reading in class. Memorization and recitation of choice selections in prose and poetry.

NOTE 1.—The object of the course in the Lower School is the cultivation of a taste for good literature, not by minute critical study, but by reading at home and in school aloud and silently with due attention to the meaning, standard authors whose works will quicken the imagination and present a strong element of interest. Such authors should be chiefly narrative, descriptive, and dramatic.

NOTE 2.—In each of the Forms, three or four books (prose and poetry) shall be read each year as class-work. Part of such books should be read at home or during study periods, and reviewed in class with special reference to the more difficult passages. At the beginning of each school year, a short list should be made out for each Form, under a few heads, of such suitable works as may be obtained in the school, public, or other library, and each pupil should be required to read during the year at least one under each head in addition to those taken up in class. The work in literature should be systematically correlated with that in oral and written composition.

HISTORY.—The leading events of the history of Canada, followed by an outline of British history. Supplementary reading and interesting biographical sketches of persons famous in Canadian and British history and in Greek and Roman history. The history of the locality. The elements of the civil government of Britain and Canada, and the duties of citizenship.

NOTE 1.—The main purpose of the course at this stage is to train the pupils to grasp the leading events in their logical order, and to arouse an interest in historical reading. As soon as practicable, a beginning should be made in appreciating the logical connection of events. Pupils should be trained to use the school, public, and other libraries for reference purposes and for supplementary reading.

NOTE 2.—The work in history should be systematically correlated with that in oral and written composition, and so much geography should be taken up as will secure intelligent comprehension of the topics dealt with. Basing compositions on historical topics, especially such as will require supplementary reading, is one of the best means of teaching the subject.

ARITHMETIC AND MENSURATION.—*Arithmetic.*—Review of principles; measures and multiples; fractions (vulgar and decimal); contracted methods of computation; compound quantities, including the metric system; square root; commercial arithmetic; applications of percentage, including commission, insurance, taxes, interest, discount, stocks, and exchange; mental arithmetic.

Mensuration.—The rectangle, triangle, circle, parallelopiped, prism, cylinder, pyramid, cone, and sphere.

NOTE 1.—The processes and problems in the commercial work shall be such as find *direct* application in ordinary life. Accuracy, rapidity, and neatness of work shall be kept in view.

NOTE 2.—The course is a two years' one. In the prescribed text-book the mensuration is completed before the commercial arithmetic is begun. The teacher should, however, use his own judgment as to the order in which the different parts of the work shall be taken up. During the first year, attention should be confined to the simpler and more practical parts of the mensuration and commercial arithmetic, the more difficult parts of both theory and exercises being reserved for the second year's work.

ALGEBRA.—Elementary work; factoring; highest common factor and lowest common multiple; fractions; simple equations of one, two and three unknown quantities; square root, cube root.

NOTE. During the first year the study of arithmetic should be an intensive one, the work of the Public Schools being thoroughly reviewed. After the first year the stress should be placed upon algebra.

GEOMETRY.—Definitions; fundamental geometric conceptions and principles; use of simple instruments, compasses, protractor, graded rule, set-square; measurement of lines and angles, and construction of lines and angles of given numerical magnitude; accurate construction of figures; some leading propositions in Euclidean plane geometry, reached by induction as the result of the accurate construction of figures; deduction also employed as principles are reached and assured. The course in Theoretical Geometry begun.

For the details of the course in Theoretical Geometry, see Appendix B., III., I.

NOTE.—The introductory course in Practical Geometry, which is intended to be a six months' one, should emphasize physical accuracy, exactness in drawing lines of required length, in measuring lines that are drawn, in constructing angles of given magnitude, and in measuring angles that have been constructed. The course in Geometry retains Euclid's common notions, regarding them from modern standpoints.

Latin and Greek.—The elementary Latin book, including introductory work in the prose authors. The Greek book begun in the second year.

Note.—Throughout the courses in Latin and Greek, the main objects should be accuracy of knowledge of forms and syntax, accuracy of translation into idiomatic English, and the ability to translate at sight. Attention should also be given to pronunciation and reading aloud, and to the consideration of Latin and Greek words as the roots of English words.

French and German.—The elementary French and German books, including introductory work in authors.

Note.—The work in French should at first be wholly without a text-book, for the training of the ear and tongue; grammar learned incidentally. Names of common objects, states, and actions. Memorization of suitable selections from simple poetry. Reading anecdotes, short stories, and easy descriptions, with oral drill on the material read. After three or four months the systematic study of the elementary book should be begun, the work being chiefly oral. German should be begun in the same way the second year, but with greater apportionment of time, and more rapid progress. When desired, German may be begun first.

Geography.—A two years' course: In the first year, a review and extension of the course for Form IV. of the Public Schools as follows: Map, political, commercial, and mathematical geography, with elementary astronomy and physical geography. In the second year, the more detailed study of physical geography, as follows:

Changes of the earth's surface; the rocks; rivers, valleys, and lakes; weathering, soils, and underground waters; wind work; glaciers and their work; plains, mountains, and plateaux, volcanoes and earthquakes; the atmosphere; winds, storms, and climate; the earth's magnetism; the ocean; the meeting of land and sea; life on the earth; geological history of Canada; the earth and the sun; the solar system; other heavenly bodies.

Note 1.—Excursions should be made where practicable and desirable, especially in connection with the study of the rocks, minerals, soils, and land formation of the district and of the forces that change the earth's surface.

Note 2.—Books of travel and other supplementary reading in geography should be supplied; also, when practicable and desirable, exhibits of the material and products characteristic of the countries studied.

Note 3.—Pictures of famous places, etc., should be shown by means of the school lantern.

Elementary Science.—An elementary practical course in Botany, Zoology, Physics, and Chemistry.

For the details of the course, see Appendix B. II.

Note 1.—The objects of the course are to train pupils in correct observation and deduction, to give, in conection with the instruction in geography, a fair knowledge of the world around them to those who will not remain at school more than a few years, and to lay the foundation for the more detailed study of each subject in the case of those who will continue the work into the higher Forms. The spirit of the Nature Study of the Public Schools should be retained, but the teacher shall introduce a more systematic treatment of the subject, with such organization of the material as will lead to simple classification and generalization. The course should be correlated with geography, drawing, and English composition.

Note 2.—Each pupil should possess a good lens, and be taught how to use it. The compound microscope should be used regularly by the teacher for illustration. Approved methods of collecting and preserving botanical specimens and of keeping live animals suitable for study should be systematically followed. Much of the practical work, especially the observations, will necessarily be done out of doors by the pupils alone, under the direction of the teacher, or by the pupils conducted by the teacher.

(*b*) The courses in Physics and Chemistry shall be as far as possible experimental and the pupils should be encouraged to work at home and to prepare simple apparatus.

NOTE 3.—When practicable, there should be an aquarium, and every school should have an arboretum and a herbarium. A museum consisting of specimens illustrative of the courses should also be established. The pupils should be encouraged to provide specimens from the locality.

NOTE 4.—After June, 1910, no Flora or Fauna will be authorized as a text-book for the pupils, but it shall be the duty of the Board to provide in the school library a sufficient supply for the pupils' use. Other works of reference shall also be provided, and the pupils should be encouraged to use them as supplementary reading, never as text-books or as substitutes for original work. Drawing and systematic written description should be required throughout the course, dated and preserved in note books for comparison and inspection, the work being systematically supervised by the teacher.

ART.—Representation, Ornamental Design, and Constructive Drawing.

For the details of the course see Appendix B. I.

BOOK-KEEPING AND BUSINESS PAPERS.—*Business Papers.*—Receipts, promissory notes, drafts, orders, deposit slips, cheques, bank drafts, bills of goods, invoices, accounts, endorsement and acceptance and consequent liability.

Book-keeping.—Double and Single Entry, involving the use of journal, cash book, invoice book, sales book, bill book, ledger, financial statements, and closing the books. Changing from Single to Double Entry.

NOTE 1.—The minimum amount of work prescribed in Bookkeeping and Business Papers, for Approved School standing, and for admission to the Model and Normal Schools and the Faculties of Education, is as follows: Sets II., III., IV., (or V.), VI., and XI. (Part I.) of the authorized text-book, or the equivalent thereof in character and amount, and a Journal Entry to change Set XI. from Single to Double Entry.

The foregoing sets when worked out shall occupy about thirty pages of foolscap (thirty-five lines to the page) or about forty pages of letter paper (twenty-eight lines to the page).

NOTE 2.—*In each set and exercise, the transactions shall be dated according to the calendar of the year in which the set or exercise is worked out in the School. The name of the month in the text-book need not be changed.*

WRITING.—Correct position and movement. Principles of letter formation. Formation of a graceful, legible business hand.

STENOGRAPHY.—The theory. Dictation and transcription.

TYPEWRITING.—Copying documents. Transcription of shorthand notes. Manifolding, letter-press copying. Touch system recommended.

II. Middle School.

ENGLISH COMPOSITION.—Courses of the Lower School in oral and written composition continued and extended. Oral and written reproduction or abstracts. Class debates. The study of models of prose writing systematically taken up towards the close of the course.

NOTE.—*Special attention shall be paid to English Composition. The Debating and the Literary Society should supplement the work in this subject.*

ENGLISH LITERATURE.—The intelligent and appreciative study of authors, both prose and poetry, including those prescribed for pass Junior Matriculation into the University of Toronto. Systematic oral reading in class. Supplementary reading provided by the pupils themselves and supplied from the school and the public or other library. Memorization and recitation of choice passages from the prescribed authors.

NOTE.—At this stage, the pupils should be able to begin to appreciate literature as such. Besides works of the same character as those taken up in the Lower School, other works of a subjective character may be added. The purpose and the spirit of the author and the merits of his thoughts and style should now be moderately dealt with; his defects should not be emphasized. The chief object is still the cultivation of a taste for good literature, and the authors should be read partly in class and partly at home, both silently and aloud.

HISTORY.—*British History.* Great Britain and Canada from 1763 to 1885, with the outlines of the preceding periods of British (including Canadian) History.

Ancient History.—A brief outline of the history of the Oriental world. General outlines of the history of Greece to the fall of Corinth, and of the history of Rome to the death of Augustus, with a brief outline of the art, literature, philosophy, and social life of the Greeks and the Romans.

The geography relating to the British and the Ancient History.

NOTE 1.—The details of the political history are not so important as the causes and the consequences of events; the social life, literature, art, etc., of the peoples; and the careers of their great men. The development of political institutions should also receive attention.

NOTE 2.—As in the Lower School, the work in history should be correlated with that in literature and oral and written composition as well as in geography. The beginnings of civilization and of the Eastern nations should be studied in outline before the periods prescribed in ancient history are taken up. The great contemporary movements in the history of Europe should also be briefly discussed.

NOTE 3.—The pupils should write short essays on historical subjects. Nothing is more valuable in teaching history than this, especially as it should involve wider reading than that provided by the school text.

ALGEBRA.—The course in the Lower School reviewed and continued. Indices, surds. Quadratics of one and two unknown quantities, the relation between their roots and co-efficients. Simple ratio and proportion. Simple graphs.

GEOMETRY.—The course in the Lower School reviewed. A selection of the leading propositions in Elementary Synthetic Geometry. Exercises and deductions on the propositions of the syllabus, the constructions in Practical Geometry being such as naturally spring from the course in Geometry prescribed for the Middle School.

For the details of the course, see Appendix B. III., I.

LATIN AND GREEK.—Course in the Lower School continued. The special study of the texts prescribed for pass Junior Matriculation into the University of Toronto, with sight work.

FRENCH AND GERMAN.—Course in the Lower School continued. The special study of the texts prescribed for pass Junior Matriculation into the University of Toronto, with sight work.

PHYSICS.—Lower School courses reviewed. An experimental course in Heat, Sound, Light, and Electricity. Simple problems.

For the details of the course, see Appendix B. IV.

NOTE.—In 1910 the examination in Physics for entrance into Normal Schools will be based on the course prescribed in 1904.

CHEMISTRY.—Lower School course reviewed. Physical and chemical changes. Elements, compounds, mixtures, and solutions. Fundamental chemical laws and principles, as definite proportions, multiple proportions, constancy of mass and equivalence. Rate of chemical reaction and the conditions that affect it. Avogadro's hypothesis and its applications. Ionization in solution. Properties of acids, bases, and salts. Types of chemical reactions, as oxidation, reduction, replacement, neutralization of acids and bases, catalytic action. Combination in solutions.

The practical study of the following elements and their more important compounds for the purpose of learning their chemical properties and relationships, illustrating the laws and principles of Chemistry, and learning something of the commercial and industrial uses and preparation of materials derived from them:

Hydrogen, Oxygen, Sulphur, Sodium, Potassium, Nitrogen, Chlorine, Bromine, Iodine, Carbon, Calcium, Strontium, and Barium.

Quantitative Exercises throughout the course.

III. Upper School.

ENGLISH COMPOSITION AND RHETORIC.—Middle School course continued and extended. Course still both oral and written. Class debates. Critical study of prose models. The principles of effective expression (rhetoric) systematically studied.

NOTE.—As in the Middle School, the Debating and Literary Society should supplement the work in this subject.

ENGLISH LITERATURE.—The intelligent and appreciative study of authors, both prose and poetry, including those prescribed for honour junior matriculation into the University of Toronto. Systematic oral reading in class. Supplementary reading provided by the pupils themselves and, as in the Lower School, from the school and the public library. Memorization and recitation of choice passages from the prescribed authors.

NOTE.—At this stage the pupil should be able to read literature still more appreciatively; but the chief object continues to be the cultivation of a taste for good literature, and critical study should be subordinated thereto.

MEDIÆVAL AND MODERN HISTORY.—General outline of Mediæval and Modern European History, with special reference to British History.

The geography relating to the history prescribed.

For the details of the courses in Mediæval and Modern history and suggestions as to the mode of study, see Appendix B. V.

NOTE.—The subject should be dealt with as in the Middle School, but here, in particular, the comparative method should also be employed as far as practicable. The continuous history of Great Britain and Ireland and of the colonies should be taken up concurrently with that of the other European States. It is recommended that in connection with English composition, each pupil should select one or more historical topics to which he will devote special attention, utilizing for the purpose the books of reference available in the school, public, and other libraries.

ALGEBRA.--Work of Middle School reviewed and extended. Theory of divisors. Ratio, proportion, and variation. Progressions. Scales of notation. Permutations and combinations. Binomial theorem. Interest forms, annuities, and sinking funds.

GEOMETRY.—The course in Geometry of the Middle School reviewed and continued. An introductory course in Co-ordinate Geometry of the point, the straight line, and the circle.

For the details of the course, see Appendix B. III., 2.

TRIGONOMETRY.—Trigonometrical ratios with their relations to one another; sines, etc., of the sum and difference of angles with deduced formulæ. Use of Logarithms. Solution of triangles. Expression for the area of triangles. Radii of circumscribed, inscribed, and escribed circles.

LATIN AND GREEK.—Course of the Middle School in grammar and composition continued. The special study of the authors prescribed for honours at Junior Matriculation into the University of Toronto, with sight work.

FRENCH AND GERMAN.—Course of the Middle School in grammar and composition continued. The special study of the authors prescribed for honours at Junior Matriculation into the University of Toronto, with sight work.

PHYSICS. 1. *Mechanics.*—Measurement of velocity; uniformly accelerated rectilinear motion; metric units of force, work energy, and power. Momentum; energy, force and momentum relations; equilibrium of forces acting at a point; triangle, parallelogram, and polygon of forces; parallel forces; principle of moments; centre of gravity; laws of friction; numerical examples.

2. *Properties of matter.*—An experimental course illustrating the following topics: Constitution of solids, liquids, gases; energy; transmutation of energy; conservation of energy; kinetic theory of matter. Boyle's and Charles' Laws; Avogadro's Hypothesis. Heat, a mode of motion; absolute temperature; mechanical equivalent of heat.

Fluid pressure at a point; pressure on a horizontal plane, pressure on an inclined plane, resultant vertical pressure and resultant horizontal pressure, when liquid is under air pressure and when it is not; transmission of pressure; Bramah press; equilibrium of liquids in contact; with calculations relating to the preceding.

The barometer. Isobars, weather forecasting. The siphon. Surface tension phenomena; surface energy illustrated with applications to filtration, dyeing, and agricultural problems. Flow of liquids—Torricelli's theorem, Bernouilli's theorem; variation of pressure with velocity of flow of liquid, with application to atomizers, Bunsen filter pumps, aspirators, forced draughts, ball nozzles, and curves of a baseball or golf ball.

NOTE.—In 1910 the examination in Physics for entrance into the Faculties of Education will be based on the course prescribed in 1904.

Chemistry.—An experimental course defined as follows:—

Chemical theory of the Lower School reviewed and continued. Chemical and physical reactions, rates of reactions, reversible reactions, chemical equilibrium. The practical study of the following elements, with their most characteristic compounds, having regard to Mendelejeff's classification of the elements, and some of the most important economic and industrial applications: Hydrogen, Sodium, Potassium, Magnesium, Zinc, Calcium, Strontium, Barium, Boron, Aluminum, Carbon, Silicon, Tin, Lead, Nitrogen, Phosphorus, Arsenic, Antimony, Bismuth, Oxygen, Sulphur, Fluorine, Chlorine, Bromine, Iodine, Manganese, Iron, Copper, Nickel.

Mineralogy.—An experimental course defined as follows:—

General chemical composition of the earth's crust. Meaning of term mineral; crystalline state of matter; physical character of minerals, hardness, streak, lustre, specific gravity, studied from actual specimens. Meaning of terms, rock, ore. The rock-forming minerals, Calcite, Quartz, Orthoclase, Plagioclase, Muscovite, Biotite, Hornblende, Pyroxene, Olivene, studied from hand specimens. Examination of hand specimens of the following rocks: Igneous—Granite, Syenite, Diorite, Gabbro, Diabase, Basalt. Aqueous—Sandstone, Conglomerate, Shale, Limestone. Metamorphic—Marble, Gneiss, Slate, Schists. Veins—kinds, how formed, how filled.

Determination with the aid of simple mineral tables of the following: Magnetite, Hematite, Pyrite, Galena, Gypsum, Halite, Graphite, Mispickel, Pyrolusite, Stibnite, Zinc blende, Chalcopyrite. Occurrence of gold, silver, coal. Chief deposits of economic minerals in Canada.

Note 1. The Lower School course in Geology (under Geography) should be reviewed in connection with the study of the minerals.

Note 2.—Many of the minerals in the above list can be found in any well developed gravel pit, a stone pile, or the glacial boulders scattered widely over Ontario. Pupils should be required to make excursions in the neighbourhood of the school for the purpose of obtaining them and observing the geological formations.

Note 3.—The determination of the minerals shall be made by observation of their physical properties and by means of the blow-pipe.

Biology.—*Zoology*.—The practical study of the external form and of the prepared skeleton of the various types prescribed. Prepared dissections may be used to supplement class dissection. Drawing by the pupils of their dissections is a necessary part of the course.

The Fish: Any one of the common fresh water fishes of Ontario; special attention to the organs of locomotion, circulation, respiration. As several species are easily obtainable, this class may be employed for studying the principles of zoological nomenclature.

The Frog: Comparison with the fish as to the organs above mentioned. Observation of the development of the spawn of one or more Amphibia.

The Reptile: A turtle and a snake. Comparison of both with a lizard.

The Bird: Special attention to the plumage, the bill and feet, and the modifications of the skeletal, muscular, and respiratory systems in connection with aerial life. Study of birds in relation to agriculture.

The Mammal: Characters of the chief domesticated and wild mammals of Ontario, as well as the main facts of internal structure of one of the smaller forms (*e.g.* the rabbit or cat). Comparison of the teeth and feet of the pig, horse, sheep, rabbit, dog, mole, bat.

The crayfish as a type of the arthropods. Comparison of the external form of the crayfish with that of an insect (*e.g.* grasshopper, cricket, cockroach), also with that of a millipede and a spider. Insects injurious to vegetation; the methods of combating their attacks.

Unsegmented and segmented worms (*e.g.* a planaria and an earth worm).

Fresh-water mussel and snail.

A fresh-water unicellular animal, such as an amœba or paramœcium.

The natural habits of the various animals studied in relation to their structure.

A general view of classification based upon comparisons of the types studied.

Note.—Models are desirable for demonstration purposes.

Botany.—The practical study of representatives of the flowering plants of the locality in which the school is situated, and representatives of the chief subdivisions of cryptogams, such as a fern, a lycopod, a horsetail, a liver-wort, a moss, a lichen, a mushroom, a chara, and a spirogyra—with a general view of classification. An elementary knowledge of the microscopic structure of the bean and the maize or other types of the dicotyledons and monocotyledons. Drawings and descriptions of parts of plants, and classification Comparison of different organs; morphology of root, stem, leaves, hair, parts of the flower; reproduction of flowering plants, pollination, fertilization and the nature of fruits and seeds. Laboratory course in plant physiology, with studies of protoplasm, osmosis, absorption of food material; culture fluids, transpiration, digestion, respiration, growth, and movement. Common economic fungi (a collection to be made) with further study of fungous diseases.

Note.—A museum is a necessary adjunct of the study of biology. See note (3) under Elementary Science of the Lower School.

Appendix B.

Details of the General Course.

I. LOWER SCHOOL COURSE IN ART.

The courses require about three of the ordinary school periods the first year, and two the second, with supplementary work by the pupils in both years. The courses and the parts thereof may be taken up in whatever order the teacher prefers.

1. *Representation.*

    (1) The use of the pencil.
    (2) The drawing of type solids in light and shade.
    (3) The principles of freehand perspective and their application.
    (4) The laws of composition.
    (5) The study of colour. The solar spectrum; the six colours: red, orange, yellow, green, blue, violet, (R. O. Y. G. B. V.); intermediate hues; neutralization of a colour by its complement and by black or gray; the mixing of pigmentary colours to produce any desired tone. The nine values: White, high light, light, low light, middle, high dark, dark, low dark, black. Harmonies of colour.
    (6) The use of the brush and water-colours.
    (7) The drawing and painting of common objects, and of specimens from nature, such as fruits, flowers, leaves, sprays and trees, birds and other animals.
    (8) Pose drawing; drawing from casts.
    (9) The illustration in line, silhouette, neutral values, and colour, of stories and school compositions; imaginative sketches.
    (10) The following are optional: The use of the mediums: charcoal, crayons, monochrome, and pen and ink; the drawing and painting of simple landscapes from nature; the mounting of drawings.

NOTE.—The Public School course provides for the use of some of the optional mediums. After August, 1911, all the mediums shall be used.

2. *Ornamental Design.*

    (1) Principles of design.
    (2) Geometric forms and their application.
    (3) Nature as a source of design; conventionalization of natural forms.
    (4) The designing in neutral values and in colour, of surface patterns suitable for floor coverings and textile fabrics, tile, wall paper, book covers, calendars, etc.
    (5) Lettering.

3. *Constructive Drawing.*

(1) The use of instruments.

(2) Simple geometrical problems.

(3) The reading, making, and lettering of simple working drawings.

Note.—In connection with the study of technique, the facsimiles of the works of great artists may occasionally be copied (see Prang's Text-Book of Art Education, No. 7, page 2).

ART MODELS.

Note.—Adequate provision of type solids, models of common objects, ceramics, and plaster casts is indispensable.

1. *Type solids* made of wood and painted white as follows:

*Cube, 4 inches face, solid.
Cube, 4 inches face, incised faces.
Cube, 4 inches face, quartered diagonally.
*Sphere, 4 inches diameter, solid.
Sphere, 4 inches diameter, halved and quartered.
*Hemisphere, 4 inches diameter.
*Cylinder, 4 x 8 inches solid.
Cylinder, 4 x 8 inches, truncated.
*Cone, 4 x 8 inches, solid.
Cone, 4 x 8 inches, truncated.
*Square Prism, 4 x 8 inches.
Square Prism, 4 x 8 inches, divided diagonally.
Square Plinth, 2 x 6 inches.
*Oblong Block, 4 x 3 x 8 inches.
*Square Pyramid, 4 x 8 inches
Square Pyramid, 4 x 8 inches, truncated.
*Right-angled Triangular Prism, 4 x 5 5/8 x 8 inches.
*Equilateral Triangular Prism, 4 x 8 inches.
Pentagonal Prism, 4 x 8 inches.
Hexagonal Prism, 4 x 8 inches.
Hexagonal Pyramid, 4 x 8 inches.
Octagonal Prism, 4 x 8 inches.
Circular Plinth, 2 x 6 inches.
*Flight of Three Steps, 8 inches long, 2 inches tread, 1 2/3 inches riser.
*Cross, 2 x 6 inches.
Chimney Model, 4 x 8 inches, divided and dowelled.
Frame, 12 inches square, mortised.
*Vase, 8 x 12 inches.
*Ovoid, 4 x 6 inches.
*Ellipsoid, 4 x 6 inches.

Note.—The models marked with an asterisk are indispensable. Where the amount spent on Art models is $50, about $10 should be spent on type solids. Care should be taken not to over emphasize their value in the course.

2. *Common objects* in wood, metal, or crockery; fruits, flowers, and vegetables in season (or models thereof in clay); mounted birds and other animals.

3. *Ceramics;* Jardinieres, pots, kettles, drinking-glasses, pitchers cups, vases, candlesticks, etc.

Note.—The ceramics should be chosen, not only for their individual beauty but for their form value in grouping and their colour value in a general scheme of colour harmony.

4. *Plaster casts;* Plaques, busts, figures, groups of figures, and historic ornament.

5. *Objects or parts of objects typical of local manufactures:* for example: Woodenware, parts of machines, samples of fabrics, wall paper, etc.

6. *Unique objects,* suitable for decorative purposes: Chinese lanterns and parasols, objects of Indian manufacture, ancient arms, etc.

Note 1.—Carbon reproductions, etchings, and engravings of famous buildings, landscapes, and figures should also be provided, to exemplify the laws of composition and to give the pupils some knowledge of the work of the great artists. These should be provided primarily as school decorations; they are not to be counted as Art Models.

In schools unable to purchase an adequate supply of the more expensive pictures, the Perry Pictures, very cheap reproductions, (*The Perry Picture Co.*, Malden, Mass.,) may be used to supplement. When, also, schools become acquainted with the masterpieces in this economical way, they will be better able to decide which of the more expensive reproductions to purchase.

NOTE 2.—Under tariff item 696 maps, photographic reproductions, casts, etchings, and lithographic prints or charts are specified as free, when specially imported in good faith by order of any College, Academy, School, or Seminary of learning in Canada, for use to demonstrate or to instruct students and not for sale.

II. LOWER SCHOOL COURSE IN ELEMENTARY SCIENCE.

1. ZOOLOGY.

General Scope of the Work: In this course in elementary Zoology the two sides of animal study are distinguished and outlined. On the one hand, is prescribed a general laboratory course which embodies the simple morphological study of common forms, representing the chief animal types. On the other hand, an outline of work on the natural history side of the subject is suggested. These are not two distinct courses. It is intended that the work of the laboratory shall be such as to help in the interpretation of the outdoor observations and incite to deeper enquiry; while the studies in natural history will make the indoor study interesting and necessary. The work in natural history will be a logical and safe foundation for the work in science taught through modern laboratory methods.

Outdoor Work: The teacher's immediate responsibility lies in the laboratory work. Outdoor work, which will of necessity vary with the locality, must be carried on to a very large extent without his direct supervision. But the teacher should encourage and direct the pupils, devoting a fair portion of the time of the class to discussions and reports on their independent work. Arrangements should be made for field excursions on suitable occasions.

A separate record of outdoor observations shall be kept by the pupils.

Selective Studies: In these studies, appended to the regular work, while a minimum is exacted in each group, freedom is offered to select such topics as time, place, and circumstances may permit the teacher to use.

Indoor Study of Living Animals: The morphological studies in the laboratory are, wherever possible, to be supplemented or preceded by observation on living specimens. For this purpose, provision will be needed for suitable aquaria and vivaria, where the moving, breathing, and feeding of the living animals may be within ready view of the pupils. *Moreover, these morphological studies are not to end in the study of form; behind the observation of the form, there must be a constant effort to interpret the* MEANING *of the form, to show the relation of form and function.*

School Museum: For progress in the natural history side of the subject collections of specimens of the local fauna will have to be made. The school museum should be a thing of gradual growth, and great care should be taken in the selection of the material. As occasion offers, it should be provided with specimens of local fish, frogs, reptiles, birds, insects, etc.

FIRST YEAR—SEPTEMBER AND OCTOBER.

Laboratory Work.

INVERTEBRATES.—Class study of a grasshopper, a spider, a centipede.

Selective studies (at least *two* to be taken):

1. Comparison of a grasshopper with a cricket or cockroach, leading to the recognition of the order Orthoptera.
2. Study of one of the following representatives of the other orders: a butterfly, a bee, a potato beetle, a house-fly, a bug, a dragon-fly.
3. Observation of bees in a laboratory bee-hive.
4. Instruction in the collecting and mounting of insects.

VERTEBRATES.—*Birds*: Study of external characters of a domestic fowl, pigeon or other common bird; instruction regarding the protection of birds by law; comparison of the bills, wings, legs, and feet of different types of birds.

Selective studies (at least *two* to be taken):

1. Chief skeletal characteristics of birds.
2. Structure of feathers.
3. Structure of an egg.
4. Demonstration of the viscera of a bird.

Outdoor Work.

Observation of the habits and development of the insects studied in the laboratory; preparation of a small collection of insects; how insects visit and use flowers; how spiders weave their webs and secure their food; collection of caterpillars for observation of their metamorphosis during the following winter and spring.

Recognition of the common wild birds of the locality; observation of their habits and of their adaptation to their different modes of living; times and modes of their southward migrations; recognition of the different varieties of pigeons, ducks, geese and chickens that may be seen in the neighbourhood or at fall fairs.—*For the Winter*: Observation of the winter birds, their feeding habits, their dangers, their modes of protection.

APRIL, MAY, AND JUNE.

Laboratory Work.

INVERTEBRATES.—Class study of the mosquito, the fresh water clam or the common garden slug, the earthworm.

VERTEBRATES.—*Fishes*: Study of the external characters of a common fish.

Selective studies (at least *two* to be taken):

1. Chief skeletal characteristics of a fish.
2. Structure of gills and the manner of breathing.
3. Microscopic demonstration of the structure of a scale.
4. Demonstration of the viscera.

AMPHIBIANS : Study of the external characters of a common frog or the common garden toad; and of the development of the animal from the egg. Economic importance of frogs and toads.

Selective studies (at least *two* to be taken) :

1. Chief skeletal characteristics of a frog or a toad.
2. Demonstration of the viscera.
3. Demonstration of the blood flow in the tail of the tadpole or the web of the frog's foot.
4. Estimation of the number of young produced and the proportion that may reach maturity.
5. *Birds* : Demonstration of the first three days' development of a chick embryo.

Outdoor Work.

Observations on the life histories and habits of economic insects, such as those suggested for study in the next term; collections of these insects; observations on the prevalence of mosquito larvæ in wet places and their destruction by kerosene : observation of the means employed by gardeners and others for combating insect pests; examination of spraying appliances; observations on beekeeping and the production of honey.

Observation of the habits of earthworms, such as their appearance after rain, their castings on the garden paths, their depth in the ground in dry weather, their injury to lawns, their destruction by robins.

Recognition of the common fish of the district and observation of their habits; observation of the food fish sold in the local market; methods of rearing fish in government fish hatcheries.

Recognition of the common frogs, tree frogs, toads, and salamanders; observations of their habits and calls.

Observation of spring migrations of birds, and the feeding and nesting habits of summer residents; recognition of bird songs.

SECOND YEAR—SEPTEMBER AND OCTOBER.

Laboratory Work.

INVERTEBRATES.—Class study of examples of such beneficial and injurious insects (at least one of each) as may have local interest in affecting field crops, gardens, orchards, forests, cattle, or the household.

VERTEBRATES.—*Mammals* : Study of the external characters of a cat, dog or rabbit; comparison of the hair, teeth, feet and locomotion of some typical mammals, such as the squirrel, mole, bat, cow, horse, cat.

Selective studies (at least *one* to be taken) :

1. Chief skeletal characteristics of a mammal, such as the cat, including recognition and relationship of the larger bones.
2. Demonstration of the viscera.

Outdoor Work.

Observation of the conspicuous insect pests of the season, the methods of attack, the injury done by them, the effect of spraying or other treatment; collection of economic insects.

Recognition of habits of our wild and domestic mammals; economic uses of domesticated mammals; recognition of the different breeds of farm animals, horses, cows, sheep, swine; comparison of the different breeds of dogs, cats, rabbits; preparation for winter and winter habits of wild animals found in the district; uses and values of skins and furs.

APRIL, MAY, AND JUNE.

Laboratory Work.

INVERTEBRATES.—Class study of a crayfish and a wood louse (*Oniscus*).

Selective Studies (at least *one* to be taken):

Other animal forms that have an economic or natural history interest such as:

1. Sponge, coral or starfish.
2. Any one of the minute forms found in ponds or stagnant infusions.

VERTEBRATES.—*Reptiles*: Study of the external characters of a snake and a turtle.

REVIEW.— General view and comparison of the characteristics of the larger groups of animals taken up in the course, summarizing and classifying.

Outdoor Work.

Continuation of the observation of the life and habits of the animals studied previously.

Recognition of the common snakes and turtles of the locality and observation of their habits; how they pass the winter; how the young are hatched.

2. BOTANY.

Remarks similar to those introducing the course in zoology will apply also to the work in botany. In particular it is urged upon the instructor that he should constantly stimulate the effort to interpret the meaning of the forms under observation—to discover where possible the relation between form and function.

FIRST YEAR—SEPTEMBER AND OCTOBER.

Laboratory Work.

The Plant as a whole: A detailed study of some common plant, such as a petunia or a buttercup, taking up the structure and functions of all the parts in succession; root, stem, foliage-leaves, flower leaves, fruit, and seed; the study at this stage to be such as can be carried on with the aid of an ordinary lens.

Fruits: Structure and classification of the simpler fruits, such as pea or bean, shepherd's purse, poppy, apple, tomato, grape, plum, maize or wheat, maple, etc. Adaptations for dispersal of seeds.

Seeds: Practical study of some common seeds, such as pea, bean, morning-glory, representing dicotyledons; maize, wheat, onion, representing monocotyledons; pine or spruce, representing gymnosperms; form, markings, parts and their functions, position of stored food.

Preparation for Winter: Annuals (including winter annuals, such as winter wheat), biennials, perennials. Storage of reserve food in root, stem, leaf and seed. Study of winter buds, their arrangement, structure, and means of protection. The fall of fruit and leaf. Interpretation of marks on trees and shrubs.

Outdoor Work.

Recognition of common annuals, winter annuals, biennials and perennials of the garden and the field. Observation of winter buds, of change in colour, and of time of falling of leaves of trees and shrubs. Study of marks on trees and shrubs. Collections of common flowering plants (including weeds), and weed seeds to be begun.

April, May, and June.

Laboratory Work.

Germination of Seeds: Simple experiments to illustrate the more important phenomena and requirements of germination and growth, *e.g.*, need of air, warmth, and moisture; evolution of carbon dioxide; how and to what extent water is absorbed; germinating power.

Artificial Plant Propagation: Cuttings, layering, budding, grafting.

Study of Spring Flowers: Plant-description and identification by means of a flora; relation of flower-structure to mode of pollination; meaning and significance of cross-pollination.

Roots: Varieties of root-forms; root-hairs; root-cap; region of growth.

Stems: Expanding of winter buds; varieties of stem-forms: erect, prostrate, climbing, twining, subterranean, aquatic; adaptation of form to habit. Spines, prickles, tendrils; their forms and uses. Stem-structure in dicotyledons and monocotyledons.

Foliage-Leaves: General structure, including epidermis, stomata, chlorophyll, veins. Protective structures, such as hairs, waxy coatings, etc. Form and arrangement of leaves in relation to sunlight and shedding of rain. Sleep-movements.

NOTE.—*The preceding work on roots, stems, and leaves may be taken up incidentally in connection with the study of spring flowers. In any case, the pupils' records must show that all the topics have been taken up.*

Outdoor Work.

Observation and recording of the time of leafing and of flowering of common wild and cultivated plants. Habitats of spring-flowering plants; conditions governing growth; insect visitors; methods of pollination. Observation of opening and closing of flowers as shown by dandelion, tulip, hepatica, etc. Time of sowing and rate of germination of garden and farm seeds. Mode of climbing of such plants as sweet pea, morning-glory, grape. Boston ivy, Virginia creeper, hop, galium, clematis, etc. Leaf-arrangement to secure best exposure to light and to shed rain. Diurnal and nocturnal positions of leaves, such as those of clover, honey-locust, oxalis (so-called shamrock), etc. Collections begun in the autumn to be continued.

SECOND YEAR.—SEPTEMBER AND OCTOBER.

Laboratory Work.

Composites: Study of typical composites, such as dandelion, burdock, and ox-eye daisy.

Weeds: Identification of common forms; their seeds; how they spread; and how they may be controlled.

Fungi: Recognition and mode of life of mushroom, puff-ball, polypore, as saprophytic forms; and apple scab, lilac mildew, wheat rust, black knot, or other common type, as a parasitic form.

Physiological Experiments: *Roots.* Simple experiments to illustrate root-functions, *e.g.*, absorption by osmosis, growth towards moisture. *Soils.* Soluble and insoluble materials in soils, and importance of each to the plant; simple experiments in illustration. *Stems.* Simple experiments to illustrate stem-functions, *e.g.*, conduction of cell-sap, heliotropism, rotation of the end of the stem in twiners and climbers. *Foliage-leaves.* Simple experiments to illustrate leaf-functions, *e.g.*, transpiration, manufacture of starch in sunlight, disappearance of starch in darkness, exhalation of a gas by green water-plants in sunlight, exhalation of carbon dioxide.

Outdoor Work.

Recognition and collection of autumn-flowering plants. Collection and recognition of weed seeds in grain screenings. Observation of injurious effects of parasitic fungi, as seen in the rotting, etc., of fruits, such as apples, grapes, plums, etc.

APRIL, MAY, AND JUNE.

Laboratory Work.

Trees: Common orchard and forest trees: Modes of branching; identification by leaves, bark, wood; uses. Special study of the conifers: the bud, leaf, and flower.

Flower Study Continued: Identification of cultivated and wild spring flowers. Study of a common grass, such as orchard-grass, Indian corn, or wheat.

Ferns: General structure and habits of a common fern.

Economic Products: Summary of economic uses of plants: for timber, food, clothing, decoration, medicine, etc.

Review: General view and comparison of the characteristics of the larger groups of plants taken up in the course, summarizing and classifying.

Outdoor Work.

Observations on plant-societies: plants of the forest, the meadow, the roadside, the pond, the marsh, the garden (weeds), the rocks, noting adaptations to environment. Observation of nodules on the roots of leguminous plants, and enrichment of the soil thereby. Observations of imported and domestic economic plant-products in market, store, and factory.

Collections to be continued.

3. PHYSICS.

FIRST YEAR—NOVEMBER TO APRIL.

Introductory: Measurement in Metrical and English units of length, area, volume, and mass; structure and use of the Balance.

The Three States of Matter: Defined and explained, Molecular Theory.

Mechanics: The principle of the mechanical powers; some of their more important simple applications.

Hydrostatics: Pascal's Law, statement and verification, some of its more important applications; pressure of liquids in its relation to direction, depth; density of liquid, area pressed, and the shape of containing vessel; Archimedes principle; specific gravity, common methods of finding specific gravities of solids and liquids.

Pneumatics: Study of the properties of a gas as exhibited in air as a type; proof that air has weight, occupies space, and exerts pressure; construction of the barometer; the relation between the volume and pressure of a gas; proof of Boyle's Law; practical applications of air pressure, air-pump, common pump, siphon, air-brakes, air-tools; meaning of wind pressure; some of the more important applications of wind pressure.

SECOND YEAR—NOVEMBER TO APRIL.

Heat: Nature and source of heat; experiments to illustrate the expansion of solids, liquids, and gases by heat; some practical applications of the principle of expansion; the anomalous expansion of water, its significance. Meaning of temperature as compared with quantity of heat; explanation of the construction of the mercury thermometer, graduation of the thermometer in the centigrade and the Fahrenheit scales; meaning of latent heat, applications.

Sound: Nature and propagation of sound; pitch of sound; consonance and resonance; string musical instruments, wind musical instruments; reflection of sound, echoes.

Light: Nature and propagation of light; simple experiments illustrating the reflection and refraction of light; dispersion of light; colour of bodies.

Magnetism and Electricity: Magnets; laws of magnetic attraction and repulsion; polarity; magnetic induction; terrestrial magnetism; construction of simple voltaic cell; decomposition of water by electricity; electro-magnet, electric bell; heating and lighting effects of the current.

4. CHEMISTRY.

A study of air and its constituents; a study of water and its constituents; a study of limestone and its decomposition-products, quicklime and carbon dioxide. Mixture, chemical compound, element, physical and chemical change.

NOTE.—In both Physics and Chemistry, practice in the preparation and manipulation of apparatus should form part of the course. Where practicable, the course should also include simple operations in glass-blowing and lathe work, and in hard and soft soldering.

III. COURSES IN GEOMETRY.

1. Lower and Middle Schools.

Following are the details of the course in Geometry prescribed for the Lower and Middle Schools of the High Schools. The first thirteen of the constructions and the first nineteen of the theorems are prescribed for candidates at the Model School Entrance Examination, in addition to the Practical Geometry of the Lower School.

A.—Constructions.

Construct a triangle with sides of given lengths.

To construct an angle equal to a given rectilineal angle.

To bisect a given angle.

To bisect a given straight line.

To draw a line perpendicular to a given line from a given point in it.

To draw a line perpendicular to a given line from a given point not in the line.

Locus of a point equidistant from two given lines.

Locus of a point equidistant from two given points.

To draw a line parallel to another, through a given point.

To divide a given line into any number of equal parts.

To describe a parallelogram equal to a given triangle, and having an angle equal to a given angle.

To describe a parallelogram equal to a given rectilineal figure, and having an angle equal to a given angle.

On a given straight line to describe a parallelogram equal to a given triangle, and having an angle equal to a given angle.

To find the centre of a given circle.

From a given point to draw a tangent to a given circle.

On a given straight line to construct a segment of a circle containing an angle equal to a given angle.

From a given circle cut off a segment containing an angle equal to a given angle.

In a circle to inscribe a triangle equiangular to a given triangle.

To find locus of centres of circles touching two given lines.

To inscribe a circle in a given triangle.

To describe a circle touching three given straight lines.

To describe a circle about a given triangle.

About a given circle to describe a triangle equiangular to a given triangle.

To divide a given line similarly to another given divided line.

To find the fourth proportional to three given lines.

To describe a polygon similar to a given polygon, and with the corresponding sides in a given ratio.

To find the mean proportional between two given straight lines.

To construct a polygon similar to a given polygon, and such that their areas are in a given ratio.

To describe a polygon of given shape and size.

B.—THEOREMS.

The sum of the angles of any triangle is equal to two right angles.

The angles at the base of an isosceles triangle are equal, with converse.

If the three sides of one triangle be equal, respectively, to the three sides of another, the triangles are equal in all respects.

If two sides and the included angle of one triangle be equal to two sides and the included angle of another triangle, the triangles are equal in all respects.

If two angles and one side of a triangle be equal to two angles and the corresponding side of another, the triangles are equal in all respects.

If two sides and an angle opposite one of these sides be equal, respectively, in two triangles, the angles opposite the other pair of equal sides are either equal or supplemental.

The sum of the exterior angles of a polygon is four right angles.

The greater side of any triangle has the greater angle opposite it.

The greater angle of any triangle has the greater side opposite it.

If two sides of one triangle be equal respectively to two sides of another, that with the greater contained angle has the greater base, with converse.

If a transversal fall on two parallel lines, relations between angles formed, with converse.

Lines which join equal and parallel lines towards the same parts are themselves equal and parallel.

The opposite sides and angles of a parallelogram are equal and the diagonal bisects it.

Parallelograms on the same base, or on equal bases, and between the same parallels, are equal.

Triangles on the same base, or on equal bases, and between the same parallels are equal.

Triangles equal in area, and on the same base, are between the same parallels.

If a parallelogram and a triangle be on the same base, and between the same parallels, the parallelogram is double the triangle.

Expressions for area of a parallelogram, and area of a triangle.

The complements of the parallelograms about the diagonal of any parallelogram are equal.

The square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the sides.

If a straight line be divided into any two parts, the sum of the squares on the parts, together with twice the rectangle contained by the parts, is equal to the square on the whole line.

The square on a side of any triangle is equal to the sum of the squares on the two other sides + twice the rectangle contained by either of these sides and the projection of the other side on it.

If more than two equal straight lines can be drawn from the circumference of a circle to a point within it, that point is the centre.

The diameter is the greatest chord in a circle, and a chord nearer the centre is greater than one more remote. Also the greater chord is nearer the centre than the less.

The angle at the centre of a circle is double the angle at the circumference on the same arc.

The angles in the same segment of a circle are equal, with converse.

The opposite angles of a quadrilateral inscribed in a circle are together equal to two right angles, with converse.

The angle in a semicircle is a right angle; in a segment greater than a semicircle less than a right angle; in a segment less than a semicircle greater than a right angle.

A tangent is perpendicular to the radius to the point of contact; only one tangent can be drawn at a given point; the perpendicular to the tangent at the point of contact passes through the centre; the perpendicular from centre on tangent passes through the point of contact.

If two circles touch, the line joining the centres passes through the point of contact.

The angles which a chord drawn from the point of contact makes with the tangent, are equal to the angles in the alternate segments.

The rectangles under the segments of intersecting chords are equal.

If $OA.\ OB = OC^2$, OC is a tangent to the circle through A, B and C.

Triangles of the same altitude are as their bases.

A line parallel to the base of a triangle divides the sides proportionally, with converse.

If the vertical angle of a triangle be bisected, the bisector divides the base into segments that are as the sides, with converse.

The analogous proposition when the exterior angle at the vertex is bisected, with converse.

If two triangles are equiangular, the sides are proportional.

If the sides of two triangles are proportional, the triangles are equiangular.

If the sides of two triangles about equal angles are proportional, the triangles are equiangular.

If two triangles have an angle in each equal, and the sides about two other angles proportional, the remaining angles are equal or supplemental.

Similar triangles are as the squares on corresponding sides.

The perpendicular from the right angle of a right-angled triangle or the hypotenuse divides the triangle into two which are similar to the original triangle.

In equal circles angles, whether at the centres or circumferences, are proportional to the arcs on which they stand.

The areas of two similar polygons are as the squares on corresponding sides.

If three lines be proportional, the first is to the third as the figure of the first to the similar figure on the second.

Questions and easy deductions on the preceding constructions and theorems.

NOTE.—In the formal deductive geometry modifications of Euclid's treatment of the subject will be allowed, though not required, as follows:—

The employment of the "hypothetical construction."

The free employment of the method of superposition, including the rotation of figures about an axis, or about a point in a plane.

A modification of Euclid's parallel postulate.

A treatment of ratio and proportion restricted to the case in which the compared magnitudes are commensurable.

2. Upper School.

Following are the details of the course in Geometry prescribed for the Upper School of the High Schools.

A.

Exercises on the course prescribed for the Middle School, with special reference to the following topics—Loci; Maxima and Minima; The System of Inscribed, Escribed and Circumscribed Circles of a Triangle with metrical relations; Radical Axis.

B.—Synthetic Geometry.

The following additional propositions in Synthetic Geometry, with exercises thereon:—

To divide a given straight line internally and externally in medial section.

To describe a square that shall be equal to a given rectilinear figure.

To describe an isosceles triangle having each of the angles at the base double of the third angle.

To inscribe a regular pentagon in a given circle.

The squares on two sides of a triangle are together equal to twice the square on half the third side and twice the square on the median to that side.

If $A B C$ be a triangle, and A be joined to a point P of the base such that $B P : P C = m : n$, then $n\,A B^2 + m\,A C^2 = (m+n)\,A P^2 + n\,B P^2 + m\,P C^2$.

In a right-angled triangle the rectilineal figure described on the hypotenuse is equal to the sum of the similar and similarly described figures on the two other sides.

If the vertical angle of a triangle be bisected by a straight line which also cuts the base, the rectangle contained by the sides of the triangle is equal to the rectangle contained by the segments of the base, together with the square on the straight line which bisects the angle.

If from the vertical angle of a triangle a straight line be drawn perpendicular to the base, the rectangle contained by the sides of the triangle is equal to the rectangle contained by the perpendicular and the diameter of the circle described about the triangle.

The rectangle contained by the diagonals of a quadrilateral inscribed in a circle is equal to the sum of the two rectangles contained by its opposite sides.

Two similar polygons may be so placed that the lines joining corresponding points are concurrent.

If a straight line meet the sides $B C$, $C A$, $A B$, of a triangle $A B C$ in D, E, F respectively, then $B D.\ C E.\ A F = D C.\ E A.\ F B$, and conversely. (Menelaus' Theorem.)

If straight lines through the angular points A, B, C of a triangle are concurrent, and intersect the opposite sides in D, E, F respectively, then $B D.\ C E.\ A F = D C.\ E A.\ F B$, and conversely. (Ceva's Theorem.)

If a point A lie on the polar of a point B with respect to a circle, then B lies on polar of A.

Any straight line which passes through a fixed point is cut harmonically by the point, any circle, and the polar of the point with respect to the circle.

In a complete quadrilateral each diagonal is divided harmonically by the other two diagonals, and the angular points through which it passes.

C.—ELEMENTARY ANAYLTICAL GEOMETRY.

Axes of co-ordinates. Position of a point in plane of reference.

Transformation of co-ordinates,—origin changed, or axes (rectangular) turned through a given angle.

$\pm 2A = x_1(y_2 - y_3) + \dots + \dots$

Co-ordinates of point dividing line joining $P_1\ (x_1, y_1,)$ and $P_2\ (x_2, y_2)$ in ratio $m : n$ are

$$x = \frac{m x_2 + n x_1}{m+n},\ y = \frac{m y_2 + n y_1}{m+n}.$$

$(P_1P_2)^2 = (x_1 - x_2)^2 + (y_1 - y_2)^2$

Equations of straight lines.

$$\left.\begin{array}{c} \dfrac{x - x_1}{x_1 - x_2} = \dfrac{y - y_1}{y_1 - y_2} \\[2ex] \dfrac{x}{a} + \dfrac{y}{b} = 1 \end{array}\right\} \text{Line defined by two points through which it passes.}$$

$$\left.\begin{array}{c} \dfrac{x-a}{\cos\theta} = \dfrac{y-b}{\sin\theta} = r. \\[2ex] y = mx + b. \\[2ex] y = m(x-a). \\[2ex] x\cos a + y\sin a = p. \end{array}\right\} \text{Line defined by one point through which it passes, and by its direction.}$$

General equation of 1st degree, $Ax + By + C = 0$, represents a straight line.

Any line through (x_1, y_1) is

$$A(x - x_1) + B(y - y_1) = 0.$$

If θ be angle between $Ax + By + C = 0$ and $A'x + B'y + C' = 0$, then

$$\tan\theta = \frac{A'B - AB'}{AA' + BB'}$$

Condition of $\perp$ rity $AA' + BB' = 0$.

Condition of $\parallel$ ism, $\dfrac{A}{A'} = \dfrac{B}{B'}$

Distance from (a, b) to $Ax + By + C = 0$, in direction, whose direction cosines are (l, m) is

$$-\frac{Aa + Bb + C}{Al + Bm}$$

$\perp$r distance from (a, b) on $Ax + By + C = 0$

$$\pm\frac{Aa + Bb + C}{\sqrt{A^2 + B^2}}.$$

THE CIRCLE—

Equations in forms:

$$x^2 + y^2 = r^2.$$
$$(x-a)^2 + (y-b)^2 = r^2.$$
$$y^2 = 2rx - x^2.$$

General equation $x^2+y^2+2Ax+2By+C=0$,

or $(x+A)^2+(y+B)^2=A^2+B^2-C$,

represents a circle with centre $(-A,-B)$ and radius.

$$\sqrt{A^2+B^2-C}.$$

Tangent at (x',y') to $x^2+y^2=r^2$, is $xx'+yy'=r$.

Normal is $\frac{x}{x'}=\frac{y}{y'}$.

Tangent in form.

$$y=mx\pm r\sqrt{1+m^2}.$$

Pole being (x',y'), polar is $xx'+yy'=r^2$.

If pole move along a line, polar turns about pole of that line.

Square of tangent from

$$(x',y') \text{ to } x^2+y^2+2Ax+2By+C=0$$

$$\text{is } x'^2+y'^2+2Ax'+2By'+C.$$

Radical axis of

$$x^2+y^2+2Ax+2By+C=0$$

$$x^2+y^2+2A'x+2B'y+C'=0$$

Easy exercises on the preceding propositions.

IV. COURSE IN PHYSICS, MIDDLE SCHOOL.

HEAT.

Nature and sources of heat; thermometers; maximum density of water; relation between volume and the temperature of a gas (Charles' Law); absolute temperature; change of state; latent heat; specific heat; mechanical equivalents of heat; transmission of heat.

SOUND.

Vibrations: Transversal vibrations, illustrated with pendulums, rods, string, membranes, plates; longitudinal vibrations illustrated with rods, strings, and columns of air. The use of the manometric flame. Production, propagation, and detection of sound waves. Velocity of sound, pitch; standard forks (acoustical C = 512, musical A = 870). Intervals; harmonic scale; diatonic scale; equally tempered scale. Vibration of air in organ pipes; nodes and loops in vibrating air columns and in vibrating strings; wave lengths and velocity relations. Laws of vibration of strings; interference phenomena; beats; resonance; reflection and absorption of sound.

LIGHT.

The ether, the wave theory of light, rectilinear propagation, image through a pin hole, beam, pencil; photometry; shadow and grease spot photometers; reflection and scattering of light; laws of reflection, images in plane mirrors, multiple images in inclined mirrors, concave and convex mirrors, critical rays; drawing images, refraction, laws and index of refraction; total reflection; path through a prism; lenses; drawing image produced by a lens by use of critical rays. Simple microscope; dispersion and colour; spectrum; recomposition of light; projection lantern.

ELECTRICITY.

Magnetism; laws of magnetic attraction and repulsion; magnetic lines of force; phenomena of induction; inclination and declination of the compass. Production and detection of electricity. Electrical conductors and insulators; electroscopes and their construction; electrical conduction through air; radioactivity illustrated by means of uranium and thorium salts, Electrical conduction in liquids; electrolysis; electroplating and electrotyping. Voltameters, storage and voltaic cells; electrical condensers; condensing electroscopes; simple notions of potential; Ohm's Law; electrical units; galvanometers and voltameters; laws of resistance; divided circuits; experimental determination of current strength, resistance and electromotive force; current induction and its general laws; the transformer, the induction coil, dynamo, telephone, motor, ether waves, Rœntgen rays, and wireless telegraphy.

V. COURSE IN MEDIÆVAL AND MODERN HISTORY, UPPER SCHOOL.

It is an advantage to pupils in Canadian schools, that though in geographical situation remote from Europe, they still are citizens of the British Empire, and thus have close connections with Europe and a special interest in its history. Having also already studied British History in the Lower and Middle Schools, they are able to connect the movements of Continental History with those of the British Empire, and so make both more clearly understood. Of all the modern European states Great Britain has the most striking history. England was the pioneer in that greatest development of modern times, representative government, and every state that now possesses parliamentary institutions has been her imitator.

The old-fashioned practice of committing to memory the list of the Kings of England with the chief dates of their reigns is eminently wise; only when some such outline is fixed indelibly in the mind have we a basis for the accurate grouping of historical events. A list of dates of the important treaties, especially those which have defined international boundaries in Europe, will also be found useful. If the environment in time of events should thus always be kept in mind, so too should that of place. An understanding of the geography of a country is indispensable to the proper study of its history. The character of a people is profoundly influenced by the climate in which they live, the fertility of their soil, and their situation, whether maritime or inland. The teacher should put clearly and simply before his classes the main geographical features of Europe and the British Isles, noting especially the more important mountain ranges and river valleys, and giving some examples of their bearing upon the history to be studied.

1. MEDIÆVAL HISTORY.

The Roman Empire.

The growth and extent of the Empire. The government and the life of its citizens and subjects. Evidences and causes of decline. Britain as a Roman province.*

Christianity within the Empire.

The relations of the government with Christianity. Diocletian. Constantine. The life of Jerome or of Augustine as illustrating the Christian attitude toward Roman society during its decline.

The Barbarian Invasions.

How far were the invasions a new or alarming phenomenon?

The Goths. The Emperor Theodosius. Alaric. Stilicho. The Huns, Attila. The Vandals. The Burgundians. Odoacer.

The teacher should not attempt any detailed outline of the invasion. He can point out on a map the chief lines of attack, and should take up only the most conspicuous names and dates. The habits and customs of the Germans he can describe to the best advantage when dealing with the Angles, Jutes, and Saxons. He should picture their life in peace and war, the character of their invasion of Britain, the destruction of Romano-British civilization. He should also contrast their settlement in Britain with that of the other German peoples in the more thoroughly Roman provinces of the Empire.

Europe after the Invasions.

The territories occupied by the surviving peoples should be shown on the map, and the attempt of Theodoric the Goth to create a peaceful barbarian kingdom in Italy should be discussed very briefly. The reign of Justinian marks the survival of the Roman Empire (now become an Eastern despotism based on Roman law, the Roman bureaucracy and army, and on Greek trade and finance) allied with the Church, and bent on re-establishing itself in the West. The personality of Justinian is an elusive one, and makes little or no appeal to young students: the Eastern situation is quite beyond them; hence the subject should be touched upon very lightly, and should give place at once to the two topics below.

The Church.

The Bishop of Rome; his position in the Church and in Italy; his relation to the Empire and to foreign powers. The life of Gregory the Great should be studied carefully in this connection; he grew up among the ruins of Imperial Rome, abandoned the Imperial service for the service of the church, and by his conduct of affairs in Italy, his government of the Church, his missionary efforts, his theological writings, extended and developed the influence of the ecclesiastical authority. He took advantage of the growth of—

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*In his treatment of the Roman occupation of Britain the teacher will find slides especially helpful.

Classified catalogues with prices can be obtained from William Rau, Chestnut and 13th Streets, Philadelphia; Levy et fils, 46 Rue Letellier, Paris; George Philip and Son, 32 Fleet Street, London, England; J. P. Gibson, Hexham, England.

Monasticism which, upon spreading from the east to the west, and, assuming a less extreme and more corporate character, had been upheld as the ideal form of Christian life, and, by adopting gradually the rule of Saint Benedict, had gained in strength and vigour throughout Western Europe.

The Franks.

As to the *Franks*, the important points are:—They made the easiest and shortest migration from their original home in the North. They were greatly influenced by the life and institutions of Roman Gaul, and the adoption of orthodox Christianity by Clovis, made them the allies of the Church. Their royal house declined as civilization impaired its native vigour, and the government passed to the Carlovingian family which came from the eastern part of the kingdom, still largely German. The Carlovingians took the crown, completed the alliance with the church by defending it in Italy, and created the *Holy Roman Empire.*

Charles the Great can be made a very real figure; his wars, court, interest in building and education, his friends, Alcuin, Eginhard, his personal conduct of the administration, his religious and political aims.

The Empire of Charles the Great.

The Empire was threatened by:

(1) *Feudalism,* which tended to make the feudal estate the unit in society and to resist centralizing and unifying forces. Feudalism should be studied, not merely on its personal side, as involving definite obligations between man and man, but broadly, as an outcome of previous conditions, and as producing what might almost be called a civilization of its own.

(2) *National divisions*: Italy, France and Germany begin to appear.

(3) *Barbarian invasions,* renewed by Saracens, Huns, and Vikings.

These topics and also those which have gone before, such as Monasticism and the Influence of Christianity can best be illustrated from English History. English society yielded to feudal influences, tribal divisions delayed national growth, the Viking attacks rendered national union impossible, made the efforts of *Alfred the Great, Edgar and Dunstan,* and *Canute* ineffective, and yielded England finally to *William the Conqueror.*

The State.

No attempt should be made to follow carefully the political history of Europe, but the development of institutions may easily be traced in England after 1066. The Norman Kings, in time united with the English people against the Norman barons, and made the alliance firm and lasting by means of a civil service and a judiciary which reached out from the court to the local assemblies. The anarchy of the reign of Stephen showed what a menace the feudal baronage might have become had not Henry II. completed its overthrow. In Richard's absence the machinery of government was improved. But the danger was that John would convert the strong centralized monarchy into a tyranny. All classes came together to oppose his attempt. The struggle continued during the greater part of the reign of Henry III. and ended only when Edward I. summoned the nation to his model Parliament and prepared for the establishment of the maxim "what touches all should be approved by all," as a first principle of the British Constitution. It should be noted by way of comparsion that, while in France the kings crushed feudalism as in England, they did not foster the local institutions of the people or submit to a Great Charter; the reign and career of Louis IX. bring out the real character of the French monarchy. In Germany on the other hand the feudal barons destroyed the monarchy, because the German kings tried to keep alive the tradition of the Roman Empire, and with this object spent much time and energy in Italy. Italy, itself, however, they were unable to control; in consequence the Normans occupied the south, Feudalism flourished toward the north, and the free cities developed in wealth and political independence. Some attention should be paid to the growth of the cities as due in part to their geographical position and their trade, in part to their relations with the Empire. The most serious opposition to the Emperor came from the Pope, who held lands in central Italy and ruled the Western Church.

The Church.

The Church with its highly developed organization penetrated the Empire and these growing nation-states. It had its *lands*, which strong kings, like William the Conqueror and Henry I., tried to control by reserving the power to appoint to office in the Church. Under Gregory VII., the Church resisted the kings; the Investiture Struggle was the result; its character can best be seen in the career of Anselm. The Church had its *courts*, which Henry II. sought to make subject to the royal system of justice; he was opposed by Thomas à Becket. It possessed strongholds everywhere in the *monasteries*, the inmates of which took charge of education, copied and thus preserved manuscripts, and tilled the soil. Their character and influence can be shown most clearly from the life of Bernard of Clairvaux. To meet the needs of the people especially in the new towns, the Church supported the movement of the *Friars*, inaugurated by Francis of Assisi and Dominic. It sent these "poor preachers" everywhere, but especially into the *Universities*, which, largely under its influence, had risen in Paris, Oxford, and other centres during the twelfth century. At first great crowds of students had gathered merely to hear famous teachers, but they soon followed settled courses, such as medicine at Salerno, law at Bologna, and worked under common regulations and customs. The Church, too, commanded other forces particularly that of religious enthusiasm, as expressed in the Crusades. For an understanding of the Crusades it is necessary to review the origin and growth of Islam and the situation in the east under its sway. The Crusaders held Jerusalem only for a time; but the movement promoted trade, brought in Eastern manners and ideas, and broadened the outlook of Western men. With the command of these forces the Church, under leaders such as Gregory VII. and Innocent III., asserted and finally established its supremacy over the Holy Roman Empire. Its victory marked the climax in the political history of the Middle Ages.

Mediæval Life.

The above topics suggest the lines which the teacher's study and knowledge of the period should follow. But he can make these of real value and interest for his pupils by portraying vividly some of the leading figures and outward aspects of mediæval life. Biography makes a strong and constant appeal to young students. In such characters as those of Anselm, Bernard of Clairvaux, Francis of Assisi, Charles the Great, of many of the Kings of England, and of Louis IX of France, the teacher commands ample material with which to stimulate the historical imagination of his pupils. He can find in all good text-books and in the form of slides and photographs illustrations of mediæval castles, churches and towns. It is an easy matter to hold the interest and improve the taste of young students by tracing with the aid of views, the development of architecture.

2. MODERN HISTORY.

Modern History is more complex than Mediæval History. During its course there have developed a number of great nations each with its own type of life, each pursuing its own ideals. In the transition to modern times we find that some mediæval institutions and ideas have almost wholly disappeared. We have no longer feudalism or crusades; the unity of the mediæval Church has been broken by the Protestant revolt; the rights of birth and rank which seemed so natural to the mediæval mind have been assailed in the struggles of such revolutions as that in France. The result is a changed world, and it is the chief function of the teacher of the history of this period to explain how the changes have come about. Only the great events and the great leaders can be followed. The chief emphasis should be placed upon the history of England, which is closely related to nearly all the great continental movements.

The Growth of National Spirit.

The growth of national spirit is seen as early as in the Hundred Years' War; France would not accept a foreign king. The teacher can use effectively the lives of Edward, the Black Prince, Henry V., and Joan of Arc. To this day France treasures the memory of Joan as one of the first to appeal effectively to French nationality.

This national movement matures only slowly into the modern system of great states, sharply divided from each other with strong centralized governments. The impelling force in these changes is summed up in the term—

The Renaissance.

It is most important to get a clear meaning of this term. It indicates more than anything else a state of mind which leads men to think for themselves. This state of mind came to the age as it comes to the maturing individual and causes him to criticize, to explore, to break away from the traditions of the immediate past, to think and act for himself. It has many aspects:

(1) *The Revival of Classical Learning.* This revival finds its chief home naturally in Italy, where Florence becomes the "Mediæval Athens." The figure of Dante, mediæval in his religious thought, but half modern in his feeling for nature and in his use of Italian, the tongue of the common people, stands at the beginning of the period. Petrarch, his younger contemporary, is modern in outlook. These two men ought to be made real. Both love ancient learning, but they are different types. Only a few Renaissance leaders should be considered: Lorenzo de Medici, Savonarola as opposing him, Pope Leo X., and Erasmus; in England More and Colet, both beautiful characters.

(2) *The Fine Arts in the Renaissance.* This is a subject so large that it may well become confusing. At most only a few great names should be discussed—Giotto at the beginning; then much later Leonardo da Vinci, Michael Angelo, Raphael, and Titian.

Photographs of the great works of art are now cheap, and by spending a small sum each year an excellent collection of reproductions could be made. Framed and hung on the walls of the school rooms they would produce an excellent effect in educating the eye and the taste of pupils.

(3) *The Revolt from the Authority of the Church.* There had long been mutterings by such men, for instance, as Wycliffe and Hus. At last Luther appears. The movement which he led is German, springing largely from the growth of the national spirit. It will be best understood by seeing vividly the character and aims of this one man, Luther. To see him the pupils must see those opposed to him,—Pope Leo X., the Emperor Charles V., Erasmus, even the English Henry VIII.

(4) *The Spirit of Discovery.* The story of the discovery of America can best be told in connection with Canadian History, but the whole subject of discovery should be understood as a phase of Renaissance thought—Marco Polo's journeys, the attempt to reach India by going round Africa, and Asia by crossing the Atlantic The reason for Spain's leading in this work should be made clear: the recent union of Castile and Aragon had made her strong enough to take such leadership and by the overthrow of the Moorish power she had ended a long conflict. These topics especially interest students in the New World: maps should be freely used.

(5) *A new Independence in Political Thought.* This is probably the most far reaching and permanent result of the Renaissance. In England the change proceeds with striking regularity. Henry VII. and Henry VIII. are practically despots: Parliament does their bidding. But the new spirit shows itself under Elizabeth in delight

in adventure (Drake, Hawkins), and in literary and scientific activity (Shakespeare, Bacon). Finally, when a Stuart and half foreign King succeeds, the nation asserts its liberties. Then we have the succession of leaders, Eliot, Hampden, Pym, Oliver Cromwell, who attack vehemently religious and political despotism. At the same time a similar struggle is found on the Continent. The Church, wounded deeply by the assault of Luther, rallies her forces. Ignatius Loyola organizes the Society of Jesus; the Council of Trent is held, largely under Jesuit leadership. The Church is soon strong enough to carry on aggressive war in regions where she had at first lost heavily. In France the bitterness of the struggle is seen in the Massacre of St. Bartholomew, while the Church's ultimate triumph is evident in the renunciation of Protestantism by its leader Henry IV., who, however, grants toleration of his former creed in the Edict of Nantes. Charles V. and Philip II. seek to destroy Protestantism in the Netherlands. The characters of both should be clearly understood, and over against Philip should be put the figure of William of Orange (the Silent) the leader of Dutch Protestantism, and the real founder of the Dutch Republic. The causes of the decline of Spain should be explained. The conflict widens and deepens. The Church aims to recover lost ground in Germany, and the Thirty Years' War breaks out. To follow the details of the War in a school class would be useless. Let only the issue be understood. Catholic Austria aims to dominate Germany, and not merely Protestant Germany but Catholic France joins in the struggle to prevent it.

The Age of Louis XIV.

The Thirty Years' War seemed to show that no single state, no single type of religious thought, could be dominant in Europe and that attempts to effect unity by coercion would fail. But it was left for France to make a further supreme effort for domination. Here it is important to show what ambitions to sway Europe France matured, over against a Germany desolated and nearly ruined by the Thirty Years' War. To follow the details of the wars of Louis XIV. would be a waste of time with a school class; but his personality, his court, his ambitions can be made clear. So also can his religious policy. His revocation of the Edict of Nantes and his resolution to have but one type of religion in France reveals the passion for uniformity that modern states have been forced to abandon. The futility of his aim to master Europe is seen in—

The rise of the new nations, Prussia and Russia.

The pomp-loving Frederick I., the first king of Prussia, his eccentric son Frederick William I., and his brilliant grandson Frederick II., (the Great) lend themselves to interesting treatment, and abundant material will be found in Carlyle's "Frederick the Great." An equally interesting figure is Peter the Great, of Russia, with his efforts to bring a hitherto Oriental state into touch with Western Europe. But, interesting as they are, these phases of European history can be touched upon only lightly.

Expansion of Great Britain.

This phrase best sums up the final result of the world-wide struggle of Britain with Spain, with Holland, and with France. Its climax is in the Seven Years' War. Again, to follow such a struggle in detail would be vain; but the pupil can be made to see clearly Frederick the Great, Pitt, Wolfe and Montcalm, Clive, and George III., determined to be master and to end the war. The War itself has far-reaching consequences in bringing prominently to the front Prussia, the master-state of modern Germany, and in establishing Britain's supremacy over France in both North America and India. From this war, indeed, may be dated the modern British Empire. True, Britain's triumph was short lived, but her disasters during the American Revolution should be passed over lightly for they are studied more fully in British History. The great crisis of European development soon came:

The French Revolution.

This era is a life's study in itself. The most a teacher can hope to do is to make vivid some of the leading figures: Turgot, his plans for reform and his failure; Necker, with his weak policy; Mirabeau, Robespierre, Danton as leaders. The Fall of the Bastille, the September massacres, the Terror and much else lend themselves to vivid treatment, but in each case the reasons for the event as well as the dramatic happening should be made clear. It should be clearly understood why the first republic was proclaimed in France, why the Terror seemed necessary, why Robespierre fell, why the Directory was established, and why, in the end, there was established a military dictatorship under—

Napoleon. Only a few chief things about Napoleon can be taught: The greatness of his genius: as a soldier, his ambition, his resolution to dominate Europe, the cause of his failure; as a civilian, his reforms and his influence.

With Napoleon's fall we have Europe once again working out the fuller results of modern as distinguished from mediæval thought. The principles so extravagantly asserted in the France of the Revolution are still potent. National feeling becomes a passion and shows itself in remarkable movements for—

Unification. This movement is seen in Germany; in Italy; in the United States, by the overthrow of secession ideas in the Great Civil War; in the British Empire by the Federation first of Canada, then of Australia and by the present movement for closer imperial unity with self-governing states within the Empire.

Such great topics can only be touched upon. Throughout the course attention should be fixed merely on the chief figures and the salient movements.

Appendix C.

DETAILS OF THE SPECIAL COURSES.

I. Middle School Course in Art.

Course of Study.

The Middle School course is a continuation of the Lower School course with the addition of the following:

1. *Representation.*
    - (1) Use of the mediums: charcoal, crayon, pencil, water-colour, monochrome, and pen and ink.
    - (2) The drawing and painting of landscapes from nature.
    - (3) The mounting of drawings.
    - (4) A few typical problems in parallel and angular perspective.
2. *Ornamental Design.*
    The study and application of Historic Ornament.
3. *Constructive Drawing.*
    Simple machine drawings and working drawings suitable for local industries.
4. *Architectural Drawing.*
    - (1) The reading, making, and lettering of the plans, elevations, and simple details of ordinary dwellings.
    - (2) A study of the Historic styles of Architecture.

Note.—Where there is a Manual Training Department, Constructive Drawing should be taken up therein, and should not be included in this Special Course.

Special Legislative Grant.

An annual grant of $25.00 will be made to the High School Board, to be spent in special Art equipment, and of $75.00 to the teacher of the Special Middle School Course in Art, as an addition to his regular salary, on the following conditions:

1. The teacher shall hold a certificate as Specialist in Art from the Department of Education.

2. The course shall consist of at least two of the four subjects prescribed for the Middle School Art Course.

3. The course shall extend over at least one year and the provision therefor in the time-table shall be at least three periods a week of one hour each, one of which may be taken up out of doors for landscape drawing and painting.

4. The class shall consist of at least six members in regular attendance who have already completed satisfactorily the Lower School Art course. [See Reg. 28 (6)].

5. The Inspector's report of the equipment, organization, teaching, and the pupil's work shall be favourable.

II. COMMERCIAL COURSE.

The Special Commercial Course is a two years' one, and is intended to provide a fair commercial education with such attention to the subjects of a general education as will fit a pupil for one of the less responsible business positions. The subjects are obligatory except where an option is indicated; but, where local conditions necessitate any modification in the course, the Principal may make them, subject to the approval of the Minister.

FIRST YEAR.

1. *English Literature*: The General Course of the Lower School.

2. *Practical English Grammar and English Composition.* The formal grammar needed as a basis for a course in Practical English. Business correspondence including letters of introduction, application, and invitation, advertisements, notices, orders.

3. *History*: The General Course of the Lower School.

4. *Geography*: The General Course of the Lower School in Mathematical, Map, Physical, and Commercial Geography, with a special course in the products and industries, communication and transportation, and domestic and foreign trade.

5. *Reading*: The General Course of the Lower School.

6. *Spelling*: Words in common use, commercial terms, common geographical names, names of noted persons.

7. *Drawing*: The General Course of the Lower School (optional).

8. *Writing*: Special attention to position and movement and the principles of letter construction. The formation of a graceful business hand. Figures, ledger headings, addresses. (Five periods a week.)

9. *Arithmetic*: Review of elementary work. Percentage and its applications to loss and gain, trade discount, commission, insurance, taxes, duties, interest and bank discount. Special attention to rapid calculation and mental arithmetic. Elementary Mensuration.

10. *Shorthand*: Course in Isaac Pitman Shorthand.

11. *Bookkeeping and Business Papers*:

Simple business forms; Receipts, promissory notes, drafts, orders, deposit slips, cheques, bank drafts, bills of goods, invoices, accounts, endorsements and consequent liability.

Double and Single Entry, involving the use of journal, cash book, invoice book, sales book, bill book, ledger, financial statements, and closing the books. Changing from Single to Double Entry.

NOTE.—The sets prescribed for Approved School standing, etc. (see under Book-keeping and Business Papers, p. 24), together with sets VII., VIII., IX., and XI. (Part II.) of the authorized text-book or the equivalent thereof in character and amount fulfil the requirements under this head.

12. *Physical Culture*: The General Course of the Lower School.

13. *Algebra*: The General Course of the Lower School (optional).

14. *French and German*: The General Course of the Lower School, with special attention to business correspondence. (Both languages or either, optional).

SECOND YEAR.

1. *English Literature*: The General Course of the Lower School.

2. *Composition*: The course of the First year continued, with special attention to correspondence.

3. *History*:—FIRST TERM: How we are governed: Parliament, legislature, municipal government.

4. *Geography*:—SECOND TERM: Study of Commercial products, their source, preparation, supply, markets. Mechanism of Commerce.

5. *Spelling*: The course of the First Year continued (optional).

6. *Drawing*: The General Course of the Lower School (optional).

7. *Writing*: The course of the Lower School continued. (Two periods per week.)

8. *Arithmetic*: The Lower School course continued, with continued special attention to rapid calculation and Mental Arithmetic.

9. *Book-keeping and Business Papers*: Use of special columns in books of original entry. Partnership and sharing of profits by different methods. Commission business. Manufacturing accounts. Trading account and comparative statements. Simple Joint Stock Company accounts. Practical treatment of freight, duties, discounts, bad debts, contracts, negotiable paper, Statutes of Limitations and of Fraud, money and bank, partnership, collection of accounts, insurance.

10. *Shorthand*: Speed of 80-100 words per minute; transcription on type-writer at 15-30 words per minute.

11. *Typewriting*: The Touch method; letter-wrting; addressing envelopes and postcards; legal forms. Speed of 30 words a minute.

12. *Physical Culture*: The General Course of the Lower School.

13. *Algebra*: The General Course of the Lower School (optional).

14. *French and German*: The course of the First Year continued, with special attention to commercial correspondence.

NOTE.—In the above courses of the First and Second years, Drawing, Algebra, French, and German are optional. If practicable, Drawing should be taken on account of its culture value. If the pupil is taking a two years' course, Algebra, as being generalized arithmetic, and French or German, or both, according to the future requirements of the pupil, should form part of the course.

THIRD YEAR.

In a few schools in the larger centres of population, a Third Year's Course may be practicable. The Minister will consider, with a view to approval, any proposal made therefor by a Board of Trustees. It is recommended that such a course be constructed on the following lines:

The continuation of the work of the Second year in English Literature, English Composition, Arithmetic, Book-keeping, Shorthand, Typewriting, and the Language option, with—

(1) An outline of the leading events in the History of Commerce with special reference to modern times; and

(2) The Mechanism of Commerce and the laws of production, exchange, and distribution of wealth.

III. COURSES AND EXAMINATIONS FOR ADMISSION TO THE MODEL AND NORMAL SCHOOLS AND THE FACULTIES OF EDUCATION.

GENERAL.

1.—(1) Written examinations, as defined below, for entrance into the Normal Schools and the Faculties of Education, will be held by the Department of Education, in July of each year, subject to the conditions hereinafter contained, at each High School and Collegiate Institute, and at such other centres as may be approved by the Minister of Education. Written examinations will also be held for entrance into the Model Schools at the close of the school year at such centres as the Minister of Education may select.

(2) (*a*) Candidates intending to write at any of these examinations shall make application to the Public School Inspector before the 24th of May on an official form to be obtained from him.

(*b*) This official form of application shall include a certificate to be signed by the Principal of the school in which the candidate has completed his course that he has read carefully during the preceding year at least four enumerated suitable works in English Literature (both Prose and Poetry) in addition to those prescribed for the examination, and that he has taken up practically the course in Science. Without this certificate or other similar evidence satisfactory to the Public School Inspector, the candidate shall not be admitted to the examination. (See Schedule A., p. 60.)

MODEL SCHOOLS.

2.—(1) The subjects of examination for entrance into the Model Schools shall be those of the Lower School of the High Schools as follows:

Book-keeping and Business Papers, Art, Elementary Science, English Literature, Geography, Spelling, English Composition, Writing, English Grammar, History (British and Canadian), Arithmetic and Mensuration, Algebra and Geometry.

(2) The Writing shall be judged from the Composition answer papers.

(3) The texts for the examination in English Literature will be prescribed by the Department of Education from year to year. The Geometry for this examination shall consist of the practical course prescribed for the Lower School of the High Schools, and of the propositions as prescribed for the Model School entrance examination in Appendix B.

(4) For admission to the English-French Model Schools, an additional paper will be set in French Grammar and Composition. The standard for pass at the examination will be 33⅓ per cent. of each paper and 50 per cent. of the aggregate.

NORMAL SCHOOLS.

Examination in July.

3.—(1) The obligatory subjects of examination for entrance into the Normal Schools shall be those of the Middle School of the High Schools as follows:

English Composition, English Literature, British and Canadian History, Ancient History, Algebra, Geometry, Physics, and Chemistry.

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(2) Candidates for entrance into the Normal Schools who take also the papers in the Middle School course in Latin (the pass Matriculation course) at the July Departmental examinations of the same year, and who make at least 33⅓ per cent. on each of such Latin papers and 50 per cent. of the aggregate of the marks assigned to both papers, shall have the marks so obtained counted as part of the 60 per cent. required on the aggregate of the obligatory subjects. The maximum for each of these papers shall be 75 marks.

Faculties of Education.

Examination in July.

4. Except as provided below, the subjects of the Departmental examination for entrance into the Faculties of Education shall be those prescribed for the Upper School of the High Schools and the examinations may be taken as follows:

(1) At one time or in two parts at different times, as follows:

Part I.—English Composition and Rhetoric, English Literature, Mediæval History, Algebra, Geometry, Trigonometry, and Physics.

Part II.—Modern History, Biology, Latin, with Chemistry and Mineralogy, *or* French and German, *or* Greek and German, *or* Greek and French.

(2) (*a*) In four parts at different times as follows, provided always that the candidates take at least three of the four parts while actually engaged in teaching, and that they pass a practical examination in addition to the examination in the papers in Biology, Chemistry, and Mineralogy:

Part A.—English Composition and Rhetoric, Algebra, Geometry;
Part B.—English Literature, Mediæval History, Trigonometry;
Part C.—Modern History, Latin, Physics;
Part D.—Biology, with Chemistry and Mineralogy, *or* French and German, *or* Greek and German, *or* Greek and French.

(*b*) Candidates who have failed in one subject at an examination in one of the four parts, but who have made 40 per cent. of the marks on each of the two other subjects and 60 per cent. of the total on said two subjects, may carry over to the examination in a part subsequently taken, the examination on the subject in which they have failed.

(*c*) Candidates writing under the provisions of 4, 2 (*a*) above, who obtained Junior Teachers' standing not later than 1900, may substitute for the course now prescribed in Latin for entrance into the Faculties of Education the special courses in English Literature and the History of the English Language and Literature prescribed from time to time by the Department of Education for those who qualify under this Regulation.

Normal Schools and Faculties of Education.

Examination in September.

5.—In addition to the foregoing Departmental examination, a candidate for admission to a Normal School or a Faculty of Education shall pass at the Normal School or the University, in September, immediately before the session opens, a Departmental examination in the following subjects of the Lower School of the High Schools, unless, as provided in 6 below, he holds a certificate from the Principal of an Approved School that he has completed satisfactorily the courses in said subjects:

Reading, Writing, Spelling, Book-keeping and Business Papers, Art, Biology, Geography, English Grammar, and Arithmetic and Mensuration.

CERTIFICATES FROM APPROVED SCHOOLS.

6.—A candidate for admission to a Normal School or a Faculty of Education who presents a certificate in the form prescribed in Schedule B. below, and who has passed the prescribed July examination, shall be admitted without further examination. (See Schedule B., p. 60.)

NOTE 1.—The Departmental approval of a school confers no standing on any of its pupils. Without the Principal's recommendation, no pupil is entitled to exemption from the September examination.

NOTE 2.—The dates of the September examinations for admission to the Normal Schools with other particulars pertaining thereto, may be obtained each year on application to the Deputy Minister of Education.

NOTE 3.—Particulars as to the examinations of the Faculties of Education are contained in their Calendars, which may be obtained on application to the Registrars of the University of Toronto and Queen's University.

EXAMINATION PAPERS AND STANDARDS.

7.—(1) (*a*) One examination paper shall be set in each subject except in the case of Latin, Greek, French, German, and Biology, in each of which subjects there shall be two papers.

(*b*) Optional questions may be given in a paper at the discretion of the Board of Examiners concerned.

(*c*) A candidate for admission to a Faculty of Education who is also a scholarship candidate at the Honour Matriculation examination may substitute for one or more of the following subjects of the Faculty examination the corresponding subject or subjects of the scholarship examination:

Mathematics, English, Physics, Chemistry, Biology, Latin, Greek, French, and German.

(*d*) At the examinations in English Composition an essay or a letter or both shall be required, to which special importance shall be attached. Questions in Rhetoric may also be set at the examination for entrance into the Faculties of Education; but no candidate shall be passed who does not satisfy the examiners in Composition.

(*e*) In addition to passages from the prescribed authors, sight passages shall also be set at the examinations in English Literature, Greek, Latin, French, and German.

(2) (*a*) Candidates will be required to make 60 per cent. of the aggregate marks of the papers in the subjects prescribed for the examinations, as well as 40 per cent. on each paper. Seventy-five per cent. of the aggregate will be required for Honours. Each examination paper shall be valued at 100, except in the case of optional Latin for entrance into the Normal Schools. (See 3 (2), p. 57.)

(*b*) If, after all the answer papers have been read, any examination paper should be found by the Revising Board of Examiners to be easier or more difficult than required, the minimum on the paper shall be correspondingly raised or lowered, and the total number of marks correspondingly increased or diminished.

(*c*) At all the examinations for entrance into the Normal and Model Schools and the Faculties of Education, a report, signed by all the members of the staff concerned, as to the standing of their candidates, will be taken into account in settling the results. Only the names of the candidates who, in the opinion of the staff, have completed satisfactorily the courses for the examination shall be included in this report.

(*d*) Each candidate who makes the required aggregate may be awarded a certificate, even though he should fail to obtain the minimum in a subject, provided he was regarded as fit to pass in that subject by the staff, as shown from the report sent to the Department before the examinations.

(3) (*a*) A candidate who has failed at the examination for entrance into the Faculties of Education may on application to the Minister of Education be granted a Normal School Entrance Certificate, provided he has obtained 50 per cent. of the aggregate of the marks for each part and 33⅓ per cent. of the marks for each paper, and provided he presents from the Principal of an Approved School the certificate, or passes the September examination, prescribed in 5 and 6 above.

(*b*) A candidate who has failed at the examination for entrance into the Normal Schools may on application to the Minister of Education be granted a Model School Entrance Certificate provided he has obtained 50 per cent. of the aggregate of the marks for the July examination and 33⅓ per cent. of the marks for each paper therefor, and provided he presents from the Principal of an Approved School, the certificate provided for in 6 above, for admission to a Normal School, or, on examination by the Principal of the Model School, gives satisfactory evidence of his knowledge of the Lower School subjects detailed in 5 above.

SCHEDULE A.

FORM OF CERTIFICATE.

..............................19...

I, ... Principal of the High School (or, Collegiate Institute) at ...., in the County of ....do hereby certify that, to the best of my knowledge and belief, ..., a candidate for entrance into ....

(1) has read carefully during the past year, the following works in English Literature in addition to those prescribed for the examination: ....

...., and

(2) has taken up practically the following courses in Science :.........

....

....

To the Public School Inspector, Principal.

....

SCHEDULE B.

FORM OF CERTIFICATE.*

....19...

I, ..., Principal of the High School (or, Collegiate Institute) at ...., in the County of ...., an "Approved School" under the Regulations of the Department of Education, do hereby certify,

(1) that ....attended the above school from .... to .... ; and

(2) that .... has completed satisfactorily the Lower School courses in :

Reading, Writing, Spelling, Book-keeping and Business Papers, Art, Biology, Geography, English Grammar, and Arithmetic and Mensuration.

....

Principal.

To the Dean of the Faculty of Education
(*or* the Principal of the Normal School)
at ....

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*This certificate shall be endorsed on the Departmental certificates that the candidate has passed the July examination for entrance into the Faculties of Education or the Normal Schools.

Appendix D.

Accommodations and Gymnasium: Grading and Grants.

School accommodation shall be considered as divided into four grades, according to the character and extent of the school buildings and grounds and their equipment. Where any part of the accommodation is used jointly by the High and Public Schools, the grading shall be one degree lower than if the schools were separate. In determining the grades, the High School Inspectors shall have regard to the following considerations:—

I. DIRECTIONS FOR GRADING ACCOMMODATIONS.

1. *School Grounds.*—The school grounds shall not be less than one acre in extent, easily accessible, not exposed to disturbing noises or noxious odours, and shall be exclusively devoted to High School purposes. In the case of Public and High Schools in the same building, the playgrounds for the High School pupils shall be separate. The grounds shall be properly levelled and drained, and ornamented with trees, shrubs, and flower beds; they shall also have separate entrances and recreation grounds and walks for the sexes. The recreation grounds for the sexes shall be separated with a close board fence, wall, or hedge. No trees shall be placed so close to the school building as to check the free passage of air and light. Provisions shall be made for keeping the buildings and grounds in good order.

2. *Water Supply.*—The water supply shall be pure and adequate Where there is no other source of water supply, there shall be a well in the school premises properly protected against pollution. If a dug well, it shall be thoroughly pumped and cleaned out at the close of each vacation and at such other times as may be deemed advisable by the inspector. Lavatories, water-taps or tanks, and drinking cups of glass or good enamelled ware, shall be provided, and satisfactory arrangements shall be made for a suitable supply of water in the laboratory. Grades I. and II. shall be given only when the water supply is inside the building.

3. *Closets.*—The closets for the sexes shall be under separate roofs several feet apart, and properly screened from observation. Each closet shall be properly lighted and ventilated and shall contain a sufficient number of compartments for the attendance, each compartment being provided with a door. The boys' closet shall be built of glazed brick or similar material, or of wood, painted a dark colour and sanded, with floors of cement, brick, or hardwood, placed at least a foot above the ground. Urinals, of slate or similar material, divided into compartments and properly situated, shall be provided for the boys, and separate and locked closets for the teachers. The closets and urinals shall be cleansed and disinfected at suitable intervals. Covered walks shall be laid from the door of the school building to the closets. A wall or a close, high board fence shall be provided between the boys' and the girls' side, from the closet to the school building, and the entrance to the closets

shall be properly screened. In the case of a Public and a High School in the same building, the closets for High School pupils shall be separate from the closets for Public School pupils. Where the closets are inside the building the above conditions shall apply *mutatis mutandis.*

4. *School Building.*—The grading of the school building shall depend upon the site and architectural appearance. In every school building there shall be separate entrances for the sexes with vestibules or covered porches, and separate means of egress at the rear to the recreation grounds and closets. Where there are two or more stories, the upper floors shall be sound-proofed with mortar, felt, or other suitable material. The school building shall be at least thirty feet distant from the highway. A school bell and a flag and a flag-pole should be provided.

5. *Class-Rooms.*—The class-rooms shall be conveniently arranged, well proportioned and oblong in shape. A superficial area of 16 square feet and a cubic air space of 250 feet shall be allowed for each pupil. Hardwood is preferable for the floors and stairways. Any wood of such quality and grain as would suit for an oil or varnish finish will suit for the rest of the woodwork. Wood finish, instead of plaster, may also receive the highest grading. If calcimined or papered, the walls shall be kept free from dust, and renovated when needed. If painted, they shall be washed down and repainted also when needed. Where it is difficult to keep the ceilings in repair, metallic sheathing should be used. Suitable colour schemes (the ceilings being of a light tint) should be adopted for the halls and class-rooms. A soft colour—a light greenish or stone gray or a dull blue—suits the class-room walls; while for the halls terra-cotta shades afford a suitable contrast. (See pamphlet on School Plans for Rural Schools—Colour Schemes for Interiors.)

The doors shall swing outwards or either way. At least one waste paper basket shall be provided for each room, and the floors shall be kept in good order. A closet or a cabinet shall be provided for utensils used in school work; also a suitable bookcase. Durable scrapers and mats shall be placed at the outside doors. In three-masters' schools or over, at least one separate class-room shall be provided for science teaching; in two-masters' schools one of the ordinary class-rooms may be used for this purpose, and in the larger schools the laboratories for Chemistry, Physics, and Biology shall be separate. There shall be a hall or class-room in which all the pupils can assemble. A movable fanlight shall be placed over each class-room door. The class-rooms should be decorated with good pictures, casts, and vases, and other beautiful ornaments. After 1910 first-class grading shall not be given unless the rooms are suitably decorated. A reasonable expenditure for this purpose will be expected from year to year.

6. *Teachers' Private Rooms.*—There shall be at least one room for the private use of the teaching staff, of suitable size and comfortably furnished. Where the teaching staff is large, there shall be two or more private rooms, one of which shall be assigned for the accommodation of the female teachers.

7. *Halls.*—The entrances, vestibules, and halls shall be roomy and well lighted, and shall be so placed to admit of separate entrances for the sexes to the waiting-rooms, cap-rooms, and class-rooms. The halls shall also be properly heated. In buildings of two or more stories there shall be separate stairways for the sexes, easy of access and well guarded. Suitable colour schemes and decorations should be provided.

8. *Waiting-Rooms and Cap-Rooms.*—The waiting-rooms and cap-rooms for the sexes shall be conveniently situated with respect to the class-rooms, and shall be properly heated and ventilated. The waiting-rooms shall be furnished with benches and tables, and the cap-rooms with all necessary appliances for storing umbrellas and for hanging caps or cloaks. Provision shall also be made in the building for storing bicycles.

9. *Desks.*—There shall be a single desk for each pupil in attendance. The desks shall be of suitable size with movable seats and adjustable lids. In each school room the outer row on each side should consist of adjustable seats and desks, to be adapted to pupils below or above the average size to be seated. The pupil, when seated, must be able to place his feet fully and easily on the floor. There shall be a desk and a chair in each class-room for the use of the teacher, and at least one chair for a visitor. A sloping stand for the gazetteer and the large dictionary shall also be provided. The laboratory shall be supplied with suitable tables for experimental work in both Physics and Chemistry. In the larger schools special provision shall be made for teaching Biology and Physics; special desks shall also be provided for Commercial and Art work, with, if practicable, separate class rooms. Grades I. or II. shall be given only when there are single desks and suitable provision has been made for practical work in Science.

10. *Blackboards.*—The blackboards shall be of sufficient extent and of good quality (slate preferred), properly placed in regard to light and distance from the floor, and furnished with troughs to hold chalk dust. There shall be a suitable supply of erasers for teachers and pupils, and the troughs and erasers shall be cleaned every day. *Every possible precaution should be taken against dust in the school room.*

11. *Lighting.*—The class-rooms shall be lighted from the left of the pupils, the lower edges of the windows being on a level with the heads of the pupils. The windows of every school building shall be adjusted by weights and pulleys, and shall admit of an adequate diffusion of light throughout the whole class-room. They shall also be provided with blinds of suitable colour (light green or gray or greenish gray). The blinds on the left of the pupils should be semitransparent; other blinds, opaque. The blinds shall be provided with cords so as to be readily adjustable to any required height. Grade I. is given only when the lighting is from the left.

12. *Heating.*—The temperature of the class-room, halls, waiting-rooms, cap-rooms, and teachers' private rooms shall be not less than sixty-eight degrees. A thermometer shall be provided for each class-room. Where stoves are used they shall be so placed and protected as to prevent discomfort to any pupil. Grades I. and II. shall be given only in the case of schools heated with hot air, steam pipes, or hot-water pipes.

13. *Ventilation.*—Due regard shall be paid to the moisture as well as the temperature of the atmosphere, and provision shall be made for an adequate supply of pure air at all times. The foul air shall be removed and the pure air supplied so that there shall be a complete change at least three times an hour. Air *shall not* be taken from the school room or from the basement to supply the furnace.

Where storm sashes are used on the outside, they shall contain sliding panels or shall be hinged at the top, to allow of the ingress of pure air; or they may be placed on the inside and also hinged at the top. It answers equally well to have double panes of glass about one-half inch apart in the same sash. A draft-chamber or other suitable special means of ventilation shall be provided for the laboratory.

II. THE GYMNASIUM.

The Gymnasium should either be a part of the main school building or be connected therewith by a covered walk. It shall be adequately heated and ventilated. The sizes best adapted, having regard to the number of pupils, are 80 x 40, or 70 x 35. The windows in the sides of the building should be at least twelve feet from the ground; each window should be about three feet high by six feet long. They should be sufficiently numerous to furnish adequate light and easily adjustable for the purposes of ventilation. One end of the gymnasium should be a dead wall without windows; the other end should contain the doors for entrance and either one large window or several small ones. The floor should be planked and a suitable supply of mattresses provided. The trapeze and flying rings should be in the central portion, suspended from points at least sixteen feet from the ground. The side rings should be suspended from points thirteen to sixteen feet from the ground. The stationary gymnastic apparatus, and the stove, where one is used for heating and where one is sufficient, should be placed at the end of the building containing the doors and windows. A locker and racks and stands should be provided for the movable appliances when not used by the class. Private rooms should be provided where the pupils may make any desirable change in their dress; also an adequate number of baths. A running track should also be provided. Where the organization renders it necessary, separate gymnasia should be provided for the sexes. If suitably planned, the assembly-room may be used in addition for Physical Culture.

III. DISTRIBUTION OF THE LEGISLATIVE GRANT.

1. *Accommodations* : The grant on the grading of the school building and grounds shall be distributed according to the following scheme :—

	Closets.	Water supply.	School premises.	School building.	Class-rooms.	Halls.	Waiting-rooms.	Cap-rooms.	Teachers' rooms.	Desks.	Blackboards.	Lighting.	Heating.	Ventilation.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
TWO MASTERS' HIGH SCHOOLS.—Grade I..........	6 00	3 00	15 00	6 00	24 00	3 00	3 00	3 00	3 00	9 00	3 00	6 00	6 00	10 00
II..........	4 50	2 50	12 50	4 50	20 00	2 50	2 50	2 50	2 50	7 50	2 50	4 50	4 50	7 50
III..........	3 00	2 00	7 50	3 00	16 00	2 00	2 00	2 00	2 00	6 00	2 00	3 00	3 00	5 00
IV..........	1 50	1 00	3 75	1 50	12 00	1 50	1 50	1 50	1 50	4 50	1 50	1 50	1 50	2 50
THREE OR MORE MASTERS' HIGH SCHOOLS.—Grade I.	9 00	4 50	22 50	9 00	36 00	4 50	4 50	4 50	4 50	13 50	4 50	9 00	9 00	15 00
II.	6 75	3 25	18 25	6 75	30 00	3 75	3 75	3 75	3 75	11 25	3 75	6 75	6 75	11 25
III.	4 50	2 00	11 25	4 50	24 00	3 00	3 00	3 00	3 00	9 00	3 00	4 50	4 50	7 50
IV.	2 25	1 00	5 75	2 25	18 00	2 25	2 25	2 25	2 25	6 75	2 25	2 25	2 25	3 75
COLLEGIATE INSTITUTES.—Grade I................	12 00	6 00	30 00	12 00	48 00	6 00	6 00	6 00	6 00	18 00	6 00	12 00	12 00	20 00
II................	9 00	4 00	25 00	9 00	40 00	5 00	5 00	5 00	5 00	15 00	5 00	9 00	9 00	15 00
III..........	6 00	2 00	15 00	6 00	32 00	4 00	4 00	4 00	4 00	12 00	4 00	6 00	6 00	10 00
IV................	3 00	1 00	7 50	3 00	24 00	3 00	3 00	3 00	3 00	9 00	3 00	3 00	3 00	5 00

2. *Gymnasium.*—There shall be four grades for High Schools and Collegiate Institutes respectively, according to the suitability of the character and extent of the gymnasium:

For Grade I., ten per cent. of the value of the gymnasium as reported by the High School Inspector, will be allowed up to the maximum value of $800 or $1,600, as the case may be [see Reg. 22 (1) and (2)]; for Grade II., ten per cent. of three-fourths of such value; for Grade III., ten per cent. of half of such value; and for Grade IV., ten per cent. of one-fourth of such value; but, when suitable additional accommodation is in use for Physical Culture, the grading will be one degree higher, unless the maximum has already been reached.

Repeal of Regulations.

All Regulations of the Department of Education inconsistent with the foregoing regulations are hereby repealed.

DEPARTMENT OF EDUCATION,
August, 1909.